

BONUS MONSTER BUYERS' GUIDE



Radio Control

April 1990

47380

CAR ACTION

THE WORLD'S PREMIER R/C CAR MAGAZINE

USA \$2.95

Canada \$3.75

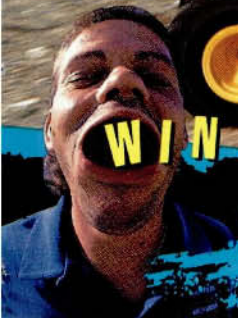
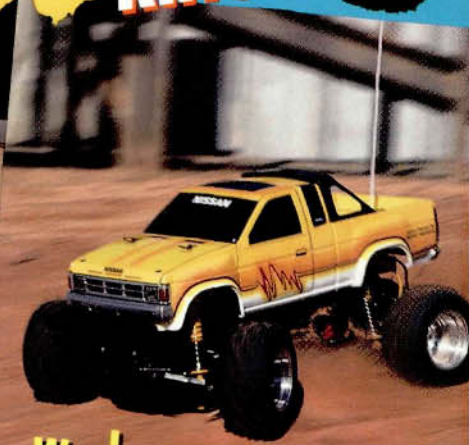
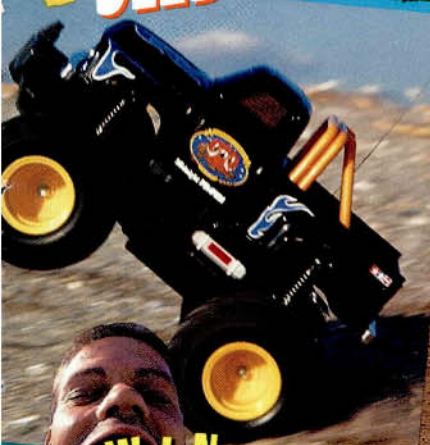


BASICS OF PULLING

**PROJECT
MAXIMUM CLOD**

SLEDGEHAMMER

**TAMIYA'S
KING CAB**

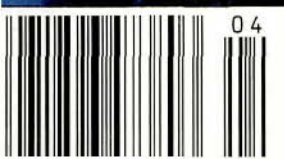


WIN TO RACE... RACE TO WIN!!

**JG TRUCK
CONVERSION**

**TECH:
MOTOR TUNING**

**FUTURE
SHOCK**





Tamiya King Cab, page 36

CONTENTS

Volume 5, Number 4

April 1990

FEATURES

24

ADVANCE ENGINEERING MAGNUM 10 PREVIEW

by Steve Pond
Yet another entry in the 1/10-scale market.

27

PROJECT MAXIMUM CLOD

by Bill O'Brien
"Bad Brain" runs amok!

54

CHEETAH RACING DIFF CENTERING KIT

by Eric Goldschrafe
Von Erich shows how some small parts can make a big difference!

56

HEAVY HAULER

by Dave Sproul
A 1/4-scale massacre! Check out this funny car puller!

68

RC10 FUTURE SHOCK

by Jerry Craft
You'll be "shocked" by the improvement!

76

MONSTER TRUCK RACING, PART I

by Rick Houle
This month, a brief history of the new breed of competition.

80

BASICS OF PULLING

by Larry Bennett
Tips from a pro!

88

MOTOR TUNING

by Erik Soderquist
A top driver unveils the mysteries of 1/12-scale motors.

92

U.S. INDOOR CHAMPIONSHIPS

by Wally David
Cleveland hosts the 1/12-scale champs.

101

SECOND LOOK SERIES: TAMIYA FALCON

by Art Schroeder
A fresh look at an old standby.

113

JG TRUCK CONVERSION

by Wally David
JG's conversion takes the JR-X2 to dizzying heights!

131

MONSTER TRUCK BUYERS' GUIDE

What's new? What's hot? It's all here...

TRACK REPORTS

36

TAMIYA KING CAB

by Steve Pond
Commander Pond meets his match in a regal monster crusher.

48

TAMIYA PUMPKIN QD

by Steve Pond
"Smitty" takes on this mini monster crusher.

60

TRAXXAS SLEDGEHAMMER

by Rick Houle
News Flash! New truck assaulted by "Houle-igans"—and survives! Film at 11.

72

KYOSHO RAIDER ARR

by Ed Schenk
A neophyte racer checks out a rad Raider.

COLUMNS

33

DIRT DIGEST

by Bill O'Brien & Bob Kane
Oh no! Someone let "Bad Brain" out of his cage...he's cornered the new King Cab...he's...he's...AAAHHH!!

66

SCOPING OUT

by John Rist
PDI's Turbo Zeta is a lab wrecker!

86

TRUCK STOP

by Dave Sproul
Distance x Weight = \$\$\$

DEPARTMENTS

6

EDITORIAL

by Rich Hemstreet

8

LETTERS

14

READERS' RIDES

19

PIT TIPS

by Jim Newman

42

TROUBLESHOOTING

70

INSIDE SCOOP

by Rich Hemstreet

98

HOT TRACKS

by Rich Hemstreet

152

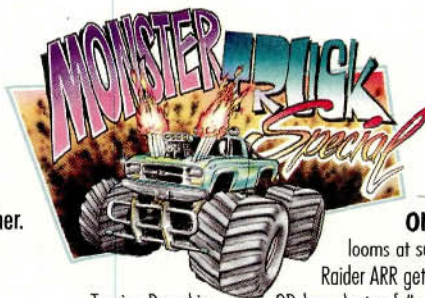
WHAT'S NEW

216

TRACK DIRECTORY

226

AD INDEX



ON THE COVER: Top: The menacing Maximum Clod looms at sunset (photo by Steve Pond). Top right: The Kyosho Raider ARR gets going in a hurry (photo by Walter Sidas). Left: The Tamiya Pumpkin QD has plenty of "get-up-and-go" (photo by Steve Pond). Center: Wild, heavy-metal, monster-truck racing action captured in sunny California (photo by Rick Houle). Right: The Tamiya King Cab slides into the truck arena and takes aim at the top! (photo by Steve Pond). Airbrush Illustration by Rick "the Hammer" Houle.

Group Publisher
LOUIS V. DeFRANCESCO, JR.

Publisher
DR. LOUIS V. DeFRANCESCO

Associate Publisher
YVONNE M. MICIK

Senior Editor
RICH HEMSTREET

Associate Editors
STEVE POND
WALLY DAVID

Technical Editor
RICHARD URAVITCH

Editor at Large
CHRIS CHIANELLI

Copy Director
LYNNE SEWELL

Copy Editors
KATHERINE TOLLIVER
LI AGEN

Editorial Assistant
BRENDA J. CASEY

Art Director
ALAN J. PALERMO

Associate Art Director
MARY LOU RAMOS

Assistant Art Directors
BETTY KOMARNICKI
ANA MARIA VAS

Art Assistants
MICHAEL MAKUCEVICH
SARA CLARKE
STEPHANIE WARZECHA

Systems Manager
ED SCHENK

Systems Assistant
JACKIE MOSIER

Circulation Manager
KATHLEEN RHODES

Advertising Sales Director
JASON STEIN

Advertising Sales Coordinator
JULIA K. PEMBERTON

Advertising Traffic Assistant
KYRA MATERASSO

Production Manager
PENNY CURCIO

Production Assistant
MARY REID

SUBSCRIPTION PRICES:
U.S. & Possessions (including APO & FPO):
1 year (12 issues) \$25.00
2 years (24 issues) \$47.00
Outside U.S.:
1 year \$35.00; 2 years \$67.00
Payment must be in U.S. funds.

RADIO CONTROL CAR ACTION (ISSN 0886-1609) is published monthly by Air Age, Inc., 251 Danbury Rd., Wilton, CT 06897. Connecticut Editorial and Business Office, 251 Danbury Rd., Wilton, CT 06897. Phone 203-834-2900. FAX: 203-762-9803. Y.P. Johnson, President; G.E. DeFrancesco, Vice President; L.V. DeFrancesco, Secretary; Yvonne M. Micik, Treasurer. Second Class Postage Permit paid at Wilton, Connecticut, and additional Mailing Offices. Copyright 1990 by Air Age, Inc. All rights reserved.

CONTRIBUTIONS: To authors, photographers, and people featured in this magazine, all materials published in *Radio Control Car Action* become the exclusive property of Air Age, Inc., unless prior arrangement is made in writing with the Publisher. The Publisher assumes no responsibility for unsolicited material. Only manuscripts and supporting material accompanied by a SASE will be returned.

ADVERTISING: Advertising rates available on request. Please send advertising materials, insertion orders, etc., to *Radio Control Car Action*, Advertising Dept., Air Age, Inc., 251 Danbury Rd., Wilton, CT 06897. Phone: 203-834-2900. FAX: 203-762-9803.

CHANGE OF ADDRESS: To make sure you don't miss any issues, send your new address to *Radio Control Car Action*, Subscription Dept., P.O. Box 427, Mount Morris, IL 61054, six weeks before you move. Please include the address label from a recent issue, or print the information exactly as shown on the label. The Post Office will not forward copies unless you provide extra postage. Duplicate issues cannot be sent.

POSTMASTER: Please send Form 3579 to *Radio Control Car Action*, P.O. Box 427, Mount Morris, IL 61054.

EDITORIAL

by RICH HEMSTREET

HERE WE GO with our second annual Monster Truck theme issue! Because monster trucks are so versatile, this segment of the R/C world continues to grow very rapidly. First-time R/C buyers find trucks an easy entry point because they can run them virtually anywhere. From there, they can turn to sled pulling, car crushing, obstacle courses, or off-road racing.

When these new enthusiasts decide to try racing, however, they frequently find the odds stacked against them. In too many cases, stock Monster Beetles, Big Brutes and Blackfoots and are forced to race against JR-X2- and RC10-based conversion kits. With the introduction of the new Tamiya King Cab, the Team Losi JR-XT and the Traxxas TRX-T racing trucks, race organizers find it even more difficult to define the classes. Here's my proposal for truck-racing classes:

The Production Monster Truck Class would include 6-cell, stock-motor, monster-truck kits. These trucks could use after-market shocks and ball diffs, but they must use the stock chassis and a minimum tire diameter of 4.5 inches. This class would include the Blackfoot, the Big Brute, the Crusher and the Sledgehammer, among other monster-truck kits.

The Stock Race Truck Class, also limited to stock motors and six cells, would include all the conversion kits and the new breed of race trucks I mentioned above. Monster trucks with after-market chassis would race in this class as well, and a slightly smaller tire diameter (perhaps 3.75 inches) would

be permitted.

The top division would be the Open Race Truck Class, with seven cells, modified motors and tires with a minimum diameter of 3.75 inches.

Let me know what you think about these ideas. It's important that we have a place for beginners to race competitively.

Four new writers appear this month: in "Basics of Pulling," Larry Bennett, of Bennett Equipment, shares pulling tips

for beginners; Jerry Craft tells you how to improve the performance of your RC10's shocks; Erik Soderquist explains how to tune 1/12-scale motors; and novice Ed Schenk take a look at the



Kyosho Raider ARR.

Also in this issue: Bill "Bad Brain" O'Brien goes wild modifying his Maximum Clod, and "Smitty" Pond puts Tamiya's new King Cab through its paces. Rick "the Hammer" Houle tries out the Traxxas Sledgehammer, and Wally David reports on the annual Cleveland classic—the U.S. Indoor Championships.

Watch for *Car Action* at the Kyosho 1/8-scale Off-Road Challenge, March 23 through 25 in Atlanta, GA. This race should be the first in a series of 1/8-scale events sponsored by Kyosho. Also look for us at this year's first Speedworks Sportsman Cup Race, which will be held at the Megatrak Superspeedway in Browns Mills, NJ, April 13 through 15.

That's all I have this month; now it's time for the annual *Car Action* sumo-editing championship—that's how we make our final decisions for the year's Top Ten winners. Next month, be sure to check out who won!

THE AYATOLLAH SAYS: CAR CRUSHING IS CONTAGIOUS!

LETTERS

WHERE TO WRITE TO US

If you're writing to the editors (and we'd love to hear from you), please be sure to address your letters to "Letters," *Radio Control Car Action*, 251 Danbury Road, Wilton, CT 06897. Only subscription orders and inquiries are handled by our Customer Service Department in Mount Morris, IL; other mail addressed there must be forwarded to Connecticut, which leads to long delays.

Why Tech?

In your "Dirt Oval Nationals" article (September '89), the picture on the far right says all the cars were carefully tech'd. How come?

RUSSELL MIDDLETON
Alameda, CA

Your letter made me realize that many people may not know why cars are technically inspected. All cars have to meet certain rules and specifications that are dictated by the racing organization holding the event.

Tech inspection generally covers vehicle length, width, wheelbase and weight. The motor is also checked to make sure that it's legal for the class in which the car is entered and that the proper number and size cells are being used in the battery pack. This inspection is supposed to prevent people from cheating or "accidentally" running a car that would give them an unfair advantage.

WD

IFMAR 1/10 World Championship

Rick Houle should be commended for his super article on the IFMAR 1/10 World Championship in Australia (RCCA, February '90). It's obvious this was Rick's first IFMAR World Championship event, and his unbridled enthusiasm

showed.

Yours was, without a doubt, the best R/C car race article I've ever seen—a presentation befitting a World Championship event. *You are to be congratulated!*

Everything was going smoothly during the World Championship practice days, until someone noticed that the Associated and Yokomo cars seemed to be the fastest. To save face, somebody started the rumor that the Yokomo wheels were oversized at 2 3/4 inches.

This rumor was immediately fed to Rick Houle as fact. Rick even sent a postcard to Rich Hemstreet (page 51) about it. The rumor is spreading, although it isn't true. (Somehow, the size later shrank to 2 1/4 inches.)

I first heard the rumor when I was talk-

THE IMPOSSIBLE TWO SECOND BARRIER HAS BEEN SHATTERED

The Team Astro Top Fuel Drag Motor keeps breaking IEDA international drag racing records from coast to coast. The two second barrier is just the beginning.

AWESOME ACCELERATION

The Astro Top Fuel Cobalt motor delivers AWESOME ACCELERATION! Ten super power cobalt magnets deliver unequalled TORQUE. Unlike wet magnets, our Cobalt magnets will never become demagnetised...no matter how much you abuse this motor. Our oversize commutator,



oversize brushes, skewed seven slot armature and SIX TURNS of 19 gauge wire will safely handle all the amps your nicad can deliver. And our adjustable timing lets you fine tune your motor for absolute AWESOME ACCELERATION!

YOU TOO CAN BREAK THE TWO-SECOND BARRIER

See Your hobby dealer TODAY and ask for Your Team Astro Top Fuel Cobalt Motor!

FLASH

ERIC SCOTT AND HIS ASTRO TOP FUEL POWERED DRAGSTER SETS NEW 1.96 SECOND TOP FUEL WORLD RECORD AT UPLAND CA, AUGUST 1989

TAKE NO PRISONERS

AstroFlight
13311 Beach Ave.
Marina Del Rey, CA 90291

ing to Kevin Orton, Mike Walker and Ernie Provetti. Kevin said, "Gene, why are you guys running oversize wheels and tires? Everyone says you are." Rumors spread fast at a race!

I informed him that the Yokomo wheels and tires were perfectly legal according to IFMAR rules, which all competitors received. Every car entered in the race had to pass a tech inspection before and after it came off the track. It's interesting that the o.d. of the Yokomo TR-31 tire is .030-inch *smaller* than the TR-9 that Associated has been selling for a year. But this fact would spoil the rumor, so it obviously couldn't be mentioned.

The problem with rumors is that some people actually believe them, because they haven't heard both sides of the story.

We've used the same wheel/tire rules at two other World Championships, and they're the same as FEMCA (Far East) and EFRA (European) rules. It's beyond me how anyone can claim a wheel/tire combination that's *smaller* is oversize!

Joel Johnson's quote (page 50) really surprised me. Joel said he would have liked a set of the TR-31s to "make this race fair for everyone." How soon we forget! Two years ago, at the World Championship race in England, Joel ran a special, one-of-a-kind, prototype Kyosho car. Kyosho had released a new square block tire made of a hard rubber compound that was available to everyone, but it didn't work on that track. What *did* work was a soft rubber version that was *only* available for Kyosho cars. At the

1989 ROAR Nationals, Team Losi came up with a tire that worked great on that track; it, of course, could only be used on the Losi car.

I have no problem with any of that; it's all perfectly legal. I've never heard of Chevy going out of its way to help Ford, or vice versa. What I can't understand is, if it's OK for them, why isn't it OK for Yokomo to do the same thing?

Because of that stupid rumor, Rick wrote (page 50) "The evil Yokomo empire had secretly developed these tires intending to introduce them at this event and enjoy a distinctly unfair advantage." Because Yokomo did the same thing as Kyosho, Losi and Pro-Line, they're referred to as "the evil Yokomo empire!"

(Continued on page 10)

POWER MONSTER

Power is the only thing Monster trucks understand. And Team Astro speaks their language. Ten super power cobalt magnets, a skewed seven slot commutator, twelve turns of 22 gauge wire, an oversize commutator, oversize brushes, and dustable timing. They all spell FULL PULL POWER.

RECORDS ARE FALLING

Team Astro Pullmaster motors are powering monster trucks to new records at NARCTPA truck pulls all over the midwest. The reasons are many but they all boil down to one thing... the Team Astro Pullmaster Cobalt Motor delivers a full pull every time.



NO NEED TO BE LEFT BEHIND

See your favorite hobby dealer TODAY and ask for the Team Astro Pullmaster Cobalt motor.

♦ ♦ ♦ ♦ ♦ FLASH! ♦ ♦ ♦ ♦ ♦

World Records at NR/CTPA World Championships

On October 14th & 15th
TWO WORLD RECORDS were set
using Team Astro PULLMASTER motors
2WD Open I: 203 lbs.
1ST PLACE: Charles Allen
2WD Open II 350 lbs.
1ST PLACE: Gary Kmit -



CHOOSE TO WIN

For your Tamiya King Cab, Blackfoot, Losi JR-XT, and Monster Truck Conversions for RC10, JR-X2, Ultima and many others!

DIRT PAW DC-43

#1943 2.2" Front or Rear. More knobs mean a longer lasting tire for high speed endurance racing from clay to loose pack surfaces.



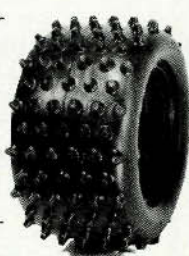
ROAD PAW AC-46

#1046 2.2" Front or Rear. A high profile design absorbs road shock for trucks cruising on concrete, clay and asphalt.



SPEED PAW DC-47

#1047 2.2" Front or Rear. Mini pin design that hooks up in medium to hard pack surfaces. Race proven in closed course dirt competition.



STRIKER II AC-50

#1050 2.2" Front or Rear. Realistic low profile design mini-mizes side wall flex for positive traction on asphalt and concrete.



Ask your Dealer for PRO-LINE Monster Truck Tires, Wheels, and Accessories.

PRO-LINE

"The Best Parts of Winning."

P.O. Box 456, Beaumont, CA 92223
(714) 849-9781

Send \$2 For Our Full-Line Catalog

LETTERS

(Continued from page 9)

This is a grave injustice perpetrated on Yokomo, which did absolutely nothing wrong. They worked very hard to win this race fair and square, and they should get the just recognition they earned.

This is a quote from an English magazine, *R/C Model Cars*, (page 82) on the World Championship: "We Brits were puzzled at how the Yokomo wheel could be illegal if the Associated one was legal. As usual, we were long on speculation and short on a rule book with which to check the facts. This wheel and tyre are definitely legal in Britain.

"Anyone could have done the work that Yokomo/Associated did and produced the goods. The fact that others chose not to is no reason to cry foul and whip up a veritable shoal of red herrings for debate. Well done, Associated/Yokomo, for harnessing the talent of Masami to the best products developed and winning the event—within the rules."

GENE HUSTING
Team Associated

Gene, thanks for writing. The tire controversy was a major issue at the Worlds, as is obvious by the number of quotes to which both you and Rick referred. Perhaps the tires weren't any larger than others that have been used, but the combination of the 2 1/4-inch-diameter wheel with the low-profile (but large-overall-diameter) tire seemed to give the Yokomo and Associated drivers an edge on that track.

Rick never said the rules were broken; he simply reported the facts and people's reactions to the situation. Some were concerned that the wheels were oversize for 1/10-scale race cars, even if they were legal according to the IFMAR rules. It's interesting, though, that the English magazine you quoted lacked a rule book with which to check the facts.

As for the size discrepancies between the postcard and the article: the card was sent from Australia during the course of the week-long event; only after he had sent it did Rick find out the actual wheel size. If the Yokomo/Associated camp had

been more open and allowed Rick to compare its tire to those run by the other drivers, his report would, perhaps, have been different. He had to get the photo of the two tires side-by-side on the sly. His camera found no optical illusion.

As for the "evil Yokomo empire," Rick was simply stating the sentiments of those who weren't able to get their hands on the Yokomo wheel/tire combo. Rick never claimed that Yokomo was an evil empire; he only reported what was being said at the competition.

Obviously, Masami Hirosaka is the top off-road driver in the world, and Yokomo, Associated and Reedy won the 1989 IFMAR Worlds fair and square. You are to be congratulated.

RH

Kudos to the Muffin Man

R/C is alive and well in outer Nebraska. My town is located between Denver and Omaha, and the only link to the national scene is *Car Action*. I eagerly await each issue.

Your coverage of the Thunderdrome action was super, and special kudos to "Muffin Man" Wally David for his driver's perspective. (Next time, try cinnamon rolls; they're more durable and require less after-market hop-ups). His articles are always interesting, and I'm putting his on-road ideas to work in my RC10. Your magazine has helped me trick-out my car from every angle.

I do have one complaint: when one of your articles runs long, it's continued in the back of the magazine, and this requires a search for the extra page or two to complete it—but, *whoa*, what's this? Wally's article ran not two or three, but 16—count 'em—16 pages in the back. Come on, guys. I'm no layout expert, but this is silly. Two paragraphs per page would at least trim things down to eight pages.

Are you worried that we might not catch the ads in the back? Fear not! We all read every issue cover to cover, ad for ad, and we look for any ideas to give us an edge on the competition. All this jumping around takes away some of the momentum of the experience. It's like run-

ning a race that requires you to stop every 10 feet. So, *please* help us out here.

Tell Chris Chianelli good luck in the world of bad fast food and bad hotel rooms. I've been there myself.

J.R. NORMAN
McCook, NE

J.R., I'll let Rich Hemstreet respond to the second part of your letter; I'll respond to the first.

Blush, blush, blush! Thanks. I really enjoyed doing the Thunderdrome article and relaying my experiences to you! The response from the R/C world has been terrific. Making an effort to get out and race at big events gives me insight into how things work, and when you read what I have to say, you know that I've experienced it.

As far as the cinnamon rolls go, I'm now accepting samples so that I can choose a more durable alternative for my pre-race breakfast. WD

J.R., I spotted Wally's head swelling as he read your letter. If it gets any bigger, he'll have to go out and buy another hat. Wally's "Survived" article may have set a new record. It jumped 16 times because Wally was suffering from writer's diarrhea—once he got going, there was no stopping him.

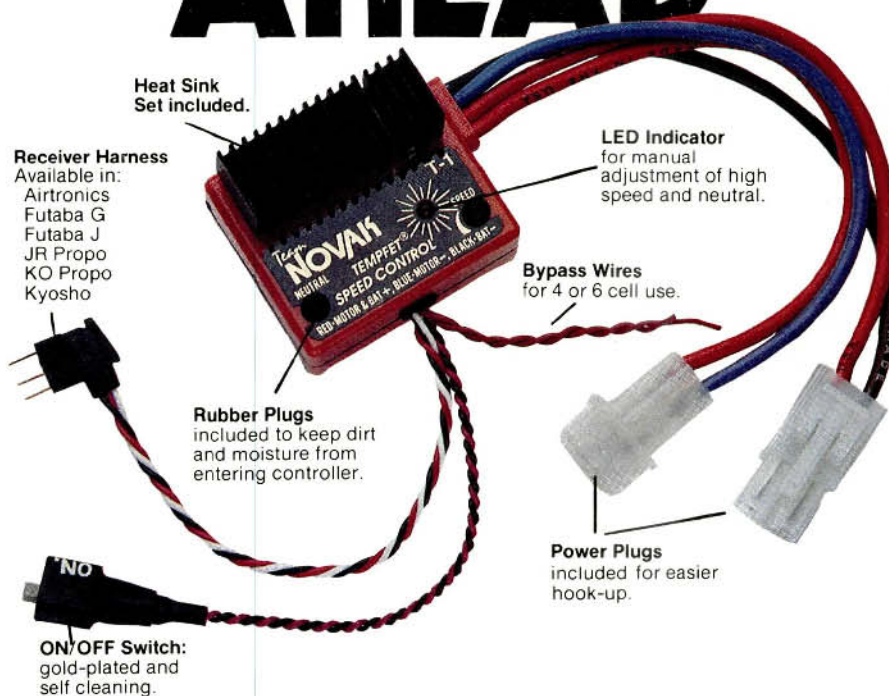
I assigned him a 3,000- to 3,500-word article, but he delivered a 7,200-word manuscript that reminded me of "War and Peace." After ruthless editing, "Survived" was still 6,000 words. I didn't take enough photos of Wally's exploits to warrant a six-page spread to start the layout, so we ditched the Track Directory and hoped we could make his article fit. I'm glad you enjoyed the article, and I'm sure we'll do more like it in the future. RH

Race Calendar?

Yo! I've been reading your magazine for quite some time now. I like what I find. I'd like to see a calendar of events, e.g., list the major R/C races in each state for

(Continued on page 20)

FULL SPEED AHEAD



TEMPFET® Speed Controls™

Designed to keep you ahead of the competition.

National & World Champions.

Discover why 15 of the 17 1988 ROAR National events were won by racers using NOVAK speed controls, and why Masami Hirosaka won the 1988 1/12 Scale IFMAR World Championship using our NESC-T1 speed control.

No Brake Failures.

By the use of temperature-sensing MOSFETs, we have eliminated aggravating speed control failures due to overloads such as shorted motors, locked-up transmissions or inadequate ventilation. Our new circuitry gives complete protection (except against reverse voltage to the controller) without the use of a fuse or a loss in performance.

Lower Voltage Drops.

The voltage drops of our new TEMPFET® Speed Controls™ have been improved to allow greater acceleration at the starting line and a longer running time. And, most importantly, greater performance for a lower cost.

Specifications	T4	T1	T1X
Weight with Wires (oz.)	1.74	1.74	2.46
Voltage Drop (V/A)	0.0045	0.0030	0.0015
Continuous Current (A)	176	276	576
Voltage Input (cells)	4-10	4-10	4-10
Braking Power (A)	26	26	52
Response (msec)	15-20	15-20	15-20
Current Efficiency	99%+	99%+	99%+
Motor & Battery Plugs	yes	yes	no

Team
NOVAK

...because you're not the only one who dreams of winning.

NOVAK ELECTRONICS, INC. 128-C East Dyer Rd., Santa Ana, CA 92707 (714) 549-3741

TEMPFET® is a registered trademark of Siemens Components, Inc. TEMPFET® Speed Controls is a trademark of NOVAK ELECTRONICS, INC.

READERS' RIDES

Welcome to Readers' Rides. This is our way of giving recognition to the unique, innovative—and sometimes bizarre—vehicles that our readers have created. If you want to join the growing ranks of Readers' Rides winners, send us a sharp, uncluttered, well-exposed color photo (no Polaroids, please!) of your car or truck, along with a brief description. Who knows? The Ayatollah of Radio Controlla might pick your car.

If your ride is chosen, you'll receive a one-year subscription to *Car Action*, or we'll extend your existing one. You'll also be eligible for the second annual "Readers' Ride Car of the Year Contest" in the fall of 1990. Send your photos to Readers' Rides, *R/C Car Action Magazine*, 251 Danbury Rd., Wilton, CT 06897. Be sure to include your address and phone number, in case we need to contact you!



TRUCK FOR A TYKE!!

This sharp-looking sport truck is the work of Jeremy Baker and his dad from Topeka, KS. Mounted on a 1/10-scale, on-road chassis, there's a sharply painted McAllister Racing Chevy pickup body, and under the hood, there's a Team Astro Turbo 05 motor with an Aristo-Craft radio system.

Jeremy was only four months old when we received this photo, and this could explain why he has some trouble driving it. Dad bought the truck when Jeremy was two weeks old, and he hopes that he'll grow into it (or will dad wear it out first!). Think you jumped the gun just a bit there, dad?



STOMPIN' SUZUKI

This Magic Blue Suzuki Samurai comes to us from Bjorn van den Berg of the Netherlands. It has a Tamiya Lunchbox chassis and is powered by a Reedy Esprit Series 17-turn motor. The width of the chassis should keep the Magic Blue upright more efficiently than that of the full-scale truck, but even if Bjorn does flip with his Samurai, he'll walk away without a catastrophic insurance rate hike.

DENVER DESPERADO

This '63 Vette/Double Dare is the work of Don Oney of Denver, CO. It has been tricked-out with flashing lights, oil-filled shocks, ESC and Thorp diffs and dogbones. The tires are from a Big Brute, and the aluminum rims are polished to a fine shine. The Vette body rests on special body posts that will allow Don to use other bodies (although we don't see why he'd want to!). A subscription to *Car Action* is on the way to Don for this trick Vette!



BIG BRAT

Thirteen-year-old Martin Bianco of Commack, NY, is the proud owner of this "monsterized" Hornet. He started with a stock Hornet, added Tamiya Lunchbox wheels and front axles, a Parma Subaru Brat polycarbonate body on Parma body mounts and, to dress-up his Hornet, he applied the blue flame decals from a Midnight Pumpkin kit. The roll bar mounted in the bed was handmade from brass tubing.

HANGIN' FOUR

When his hobby dealer told Rob Myers of Georgetown, IL, that—unlike the full-scale trucks—his Clod Buster wouldn't float, he decided to prove him wrong. After turning the tires around for a better "bite" in water, Rob sealed them to the rims, plugged the vent holes and headed for the pool. As you can see, the mission was successful. As for the skeptical hobby dealer, tell him, "Here's mud in your eye!"



TRUCK THERAPY

This basically stock Clod has a hot-looking red paint job and silver-painted wheels. So what makes it so extraordinary? Brian Walker of Stone Mountain, GA, is a 19-year-old carpenter who, as a result of an accident, had his left index finger and part of his hand amputated, and the accident also damaged the nerves of his middle finger.

With the encouragement of his doctors and his friend Richard Curtiss, Brian decided that building a Clod Buster would be good therapy. Richard explains that Brian had a rough time early on, but he has been able to overcome his injuries and really enjoy himself. Brian's Clod is one of the best we've seen. Congratulations!

HITCH UP THE WILLYS

We bet that if you took a really quick look at a picture of Bob Bomar's '41 Willys, you'd think it was full scale. Actually, it's a converted Associated RC10 with a Parma Willys body and Team Losi's aluminum wheel halves on the outside of the stock Associated wheels.

The trailer on which the Willys is perched is the handiwork of Stan Rice. It uses the Losi aluminum wheel halves, and it includes a custom toolbox, a tire rack and even a spare gas can. Are you sure you didn't forget anything, Bob?!

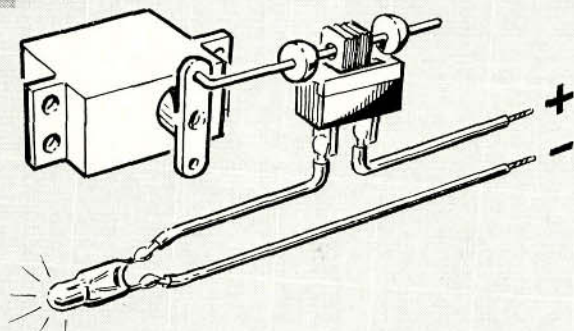


FATHER & SON

When Snap-On tool dealer Bob Nagy, of Fords, NJ, decided to make an impact on the R/C world, he and his son Mark decided to fly his company's colors. Bob's Clod and Mark's Lunchbox are fitted with the familiar Snap-On van bodies that you'll see selling tools at repair shops all over the USA. Who knows?—perhaps they'll start carrying tools to R/C repair shops in the near future.

PIT TIPS

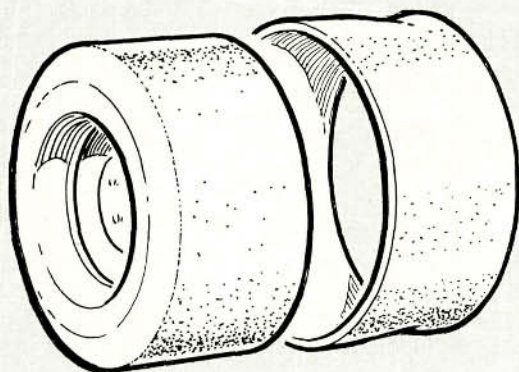
by JIM NEWMAN



DRIVER-CONTROLLED LIGHTS

For this, you'll need to find room in your car for an extra servo, and you'll also need a 3-channel radio. The additional servo controls a miniature on/off switch, the knob of which has been drilled to allow the passage of the wire pushrod. The two plastic "keepers," or wheel collars, are available in the model plane section of your hobby store. Only one light is shown, but others can be easily added in parallel.

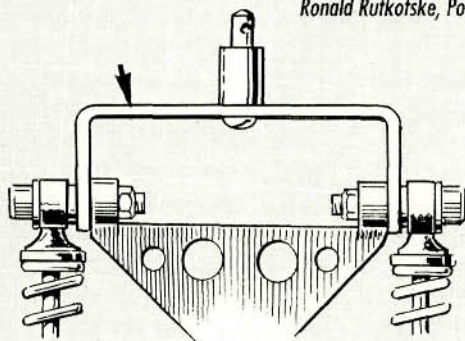
Chris Dahlberg, East Meadow, NJ



RETREADS FOR CEMENT OR BLACKTOP

True a set of old sponge tires (see the February "Pit Tips" for how to do this), then cut sections from an old cycle inner tube. Apply rubber cement to the tires; then slide on the inner-tube sections. When the cement has dried, carefully sand off the inner-tube mold seam. Ron says they really work!

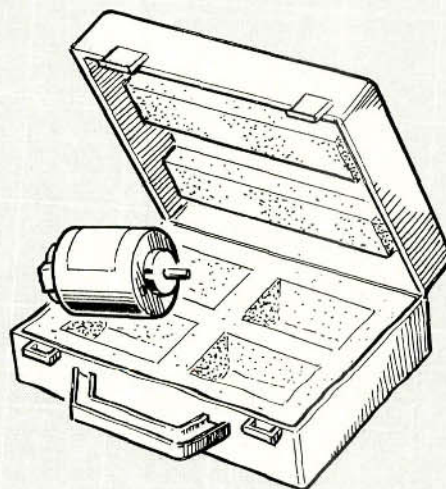
Ronald Rutkofske, Port Huron, MI



RAISING THE BODY

This is one way to custom-fit that high-clearance truck shell, and it should work on many cars. Cut a strip of hard aluminum and bend it into a broad U-shape (arrowed). Secure this under the shock-unit's bolts, and then drill it to accept one of the many available body-mounting posts. Only one post is shown here, but two would be much better.

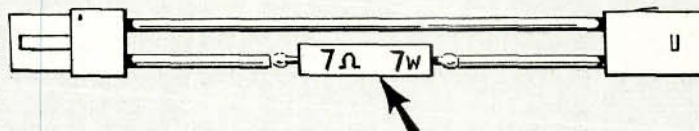
Richard King, Dillsburg, PA



SPARE-MOTOR CARE

Spare motors should be treated kindly. Why not nest them in their own carrying case? T.J. found an inexpensive plastic pencil box with snap latches. He lined it with ordinary foam rubber, cut out "nests" for his motors, and glued foam retaining strips into the lid. The cost?—only about two bucks.

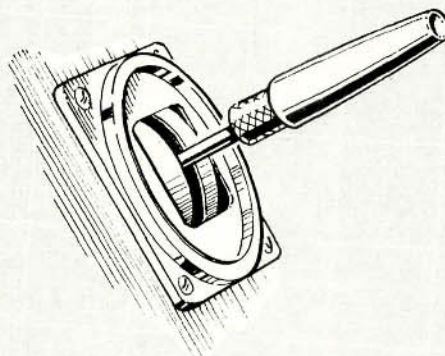
T.J. Ahl, Austin, TX



MOTOR BREAK-IN LEAD

By using a resistor in this adapter lead you can use an existing 6-cell battery pack to break-in your new motor. The resistor drops the voltage to a sufficiently low level and, for a 6-cell pack, Hayward recommends a 7-ohm, 7W resistor from Radio Shack. *Caution:* use silicone-covered wire because the resistor gets *hot* when it's discharging.

Hayward Butler, Roskilde, Denmark



DESENSITIZE STEERING

Michael had over-controlled steering, and he decided to tackle this problem at the controller end. He wrapped adhesive tape around the two sticks, then forced ball-point-pen tops over them to make them much longer. By doing this, he effectively "geared down" his control-stick movements.

Michael Wagner, Taber, Alberta, Canada

(Continued on page 22)

ROCK BUSTER



Original

Two wheel drive.
Rear differential.
RS-380 motor.
Spring shocks.
3 speeds.
#21331 (kit)
#21343 (assm.)

Hopped-Up

Rear differential.
RS-540 motor.
Oil filled shocks.
3 speeds.
Front torsion bar.
#21772 (kit)
#21719 (assm.)

We carry a full line of hop-up & replacement parts!

CHARGERS!



ProCharge

Charges 4-10 cells.
Made in USA!
Two separate charging outputs.
0-15 minute timer.
Fused circuits.
5 year warranty.
AC or 12VDC input.
#10155 (Model 1020)

Peak Charger

For 7.2V packs (250 - 1200mAh).
Audible & visual indicators.
Compact size.
Auto switch to trickle charge.
12VDC input.
#11625

We have the charger for you! Call about our other models.

BATTERIES!



GEMAX Packs

Six cell hump or flat packs.
Seven cell flat packs.
Matched 1500mAh fast charge cells.
8.4V: #11708 (flat)
7.2V: #21335 (hump), #21467 (flat)

WORLD ENGINES INC.



8960 Rossash Road
Cincinnati, Ohio 45236/1288
Phone: (513) 793-5900
Fax: (513) 793-7337

LETTERS

(Continued from page 11)

the upcoming month. Keep up the good work.

CHUCK BURTON
Concord, CA

Y, Chuck. Thanks for your suggestion. We're looking into the idea but there hasn't been any decision yet. Hang in there a little longer. Race promoters could help out by sending us flyers about upcoming races, but we must have a three-month lead time.

WD

More IFMAR Worlds

During the last few years, I've looked forward to receiving my monthly issues of your magazine. Its coverage of big events (especially speedway) has always been interesting and informative. With this in mind, I was quite surprised at your article on the IFMAR World Championships. My opinion is that this was more of an editorial than a race report.

The reason for this letter, though, is to get some facts straight about IFMAR and my role as its vice president and electrics-division chairman. IFMAR was formed many years ago by a group of enthusiasts from around the world who wanted to see the best there are get together and race. This group included Ted Longshaw (IFMAR President), Gene Husting, Don McKay and me, Mike Reedy. After the first world championship in 1977, IFMAR was formally formed, with the organizations (ROAR, FEMCA, EFRA) from the three major geographical areas making up the governing board. This setup continues today.

At the first meeting, Ted Longshaw of England was elected president and has been re-elected every two years since. When the organization grew and electrics came on the scene, IFMAR elected a vice president—me. I've since been re-elected three times and still have the honor of being the vice president. I've always considered this office an honor and privilege, and a sign of trust and appreciation of racers around the world. I know that anyone holding this office who is also a manufacturer leaves himself open to

added scrutiny. I feel I've always been unbiased in my IFMAR duties, both at races and elsewhere. If I hadn't, I'm sure I wouldn't have been re-elected and served four terms.

In the heat of racing, many things are said, most of which are retracted or apologized for after it's all over. I think you can see what I'm getting at and why I take offense at statements and innuendos made in your magazine concerning IFMAR and me. To get the facts straight, let me offer the following:

1. My decision not to make the organizers change their track-maintenance procedures was made with these considerations:

- It was announced well in advance what the procedures would be. That was the time to make any changes, but no one commented then.

- My full statement said, "IFMAR would not force the organizers to change at this late date, but if they had the manpower and wanted to, they could." I thought that was fair—how about you? The organizers said anyone could do limited track repair during the day, if they wished. Guess what? Nobody thought it important enough to actually do the work regularly.
- Precedent was set for this at the previous year's world championships. Then, the Associated/USA team protested the track layout and requested it be changed. I made the decision not to allow the protest, as the track layout and availability were published eight months in advance, and if they were to be questioned, it should have been done at that time.

2. About the wheels/tires:

- There was no protest lodged about the size of either the Yokomo wheel or tire. The representatives of each organization, with the exception of ROAR, found the wheels and tires met all their rule specifications.

- A protest was made "that the tires should be available for all competitors." This was not upheld because, number one, there's nothing in IFMAR's, or any of the blocs', rules concerning this, and number two, it

would have caused problems because it would have to apply to *all* tires and wheels, and there were others at the event (from different manufacturers) which were available to a "select few" also.

- The tires were not out of scale; they actually measured less in diameter than others being used.

3. Your statement, "Reedy, who owns Reedy Motors, (the ones used by Team Associated and Yokomo), thought that the spirit of the rules wasn't compromised," is a little misleading. If you wish to tell the complete story, Reedy Motors also supplied motors to Team Schumacher. I also never made that statement and do not appreciate being misquoted.

At the IFMAR meeting, I asked all the representatives if they had any rule changes to propose; no one did, but they all said they would get them to me so I could put them on a postal ballot. Guess what? So far, only ROAR has proposed any changes. EFRA has voted to leave its wheel specifications as they are—meaning the Yokomo wheel still meets its specifications.

I think there should be a lot of changes made, covering things from track maintenance to technical specifications. We need some constructive proposals, or there will be no changes before the next event, and everyone can get all excited again.

As I said, I've enjoyed your magazine through the years and hope to continue doing so. But *please* get your facts straight before you print things concerning people and events that there are questions on.

MIKE REEDY
IFMAR Vice President

Mike, thanks for your letter and for the work you've done in IFMAR over the years. Concerning the issue of track maintenance, I think that, given the circumstances, i.e., that the maintenance problem at the '87 Worlds was never addressed, you made the best decision possible. I'm not sure what the organizers meant by permitting limited track repair,

(Continued on page 110)

YOU HAVE THE BEAST WE'VE GOT THE BEAUTY



CUSTOM ALUMINUM and BRASS ACCESSORIES for your trucks
direct from the manufacturer.

All parts are CNC machined and come highly polished
for a **SHOW CHROME** or **SHOW BRASS** look.

Available for:

Clod, Blk. Foot, Lunch Box, Mid. Pumpkin, Monster Beetle, Mud Blaster, Bruiser.

Here are just a few of the items that we offer:

Double and Single Roll Bars
Working Roll Bar Light Kit
Diamond Plate Bed Liners
Ribbed Plate Bed Liners
Side Body Guards "single"
Side Body Guards "double knurled"
Skid Bars "square or round"
Clod Warrior Front & Rear Bumper w/Hitch
Clod Front End Operational Tilt Kit
Custom Aluminum Trailer
Front & Rear Bumpers "square or tubular"
2 pc. Fuel Injection Stacks
1 pc. 30 deg. Fuel Injection Stacks
Truck Puller Stacks
1/10th Scale Motor

Windshield Wipers
Side Mirrors
Working Cab Lights
Side Exhaust Stacks w/Shield
Clod Bed Tool Box
Hydraulic Body Lift Kit
Fire Extinguishers
Clod Frame Reinforcer Kit
Dual Wheel Adapter Kits
Diamond Step Plates
Clod 10 pc. Lift Kit
1/16 Scale R/C 18 Wheelers
1/4 Scale R/C Indy and
Stock Cars
TMS Aluminum Rims

ALSO AVAILABLE CLOD & BLACKFOOT CHROME PLATED PARTS

* * NEW * *

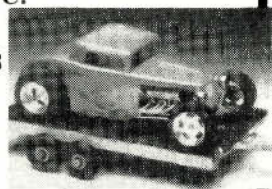
APM'S CLOD STEEL GEARS: Featuring Stock Ratio Posi-Traction
Both Gear Boxes, 6 Gears: Sug. Retail \$99.95

APM'S 1 Pc. CLOD ALUMINUM CHASSIS: Light Weight, Bolts
right on: Sug. Retail \$79.95 ea.

SEND \$2.00 FOR OUR FULLY DETAILED CATALOG TO:



A.P.M. CUSTOM HOBBY CO. INC.
P.O. BOX 357
DUMONT, NEW JERSEY 07628
(201) 387-2908



SEE YOUR LOCAL HOBBY SHOP
DEALER INQUIRIES ARE VERY WELCOME

HOBBY



Formerly The Bon Hobby Shop
Serving the Pacific Northwest Since 1938



HAVING TROUBLE FINDING PARTS?

One Of The Most Complete Parts And Aftermarket Inventory For:

• TAMIYA • CLOD BUSTER • MIDNIGHT PUMPKIN • FALCON •

Huge selection of R/C Motorcycles, Electric Helicopters,
Boats, Planes, Flight Simulators

CALL TODAY FOR SPECIAL PRICES ON COMBO PACKS

FREE CATALOG

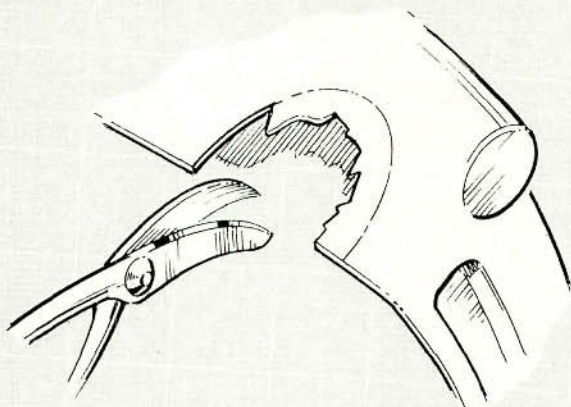


OAKTREE VILLAGE
10002 Aurora Ave. N.
Seattle, WA 98133

1-800-HOBBY-98

(206) 525-4776
FAX: (206) 522-3408
(Evening Only)

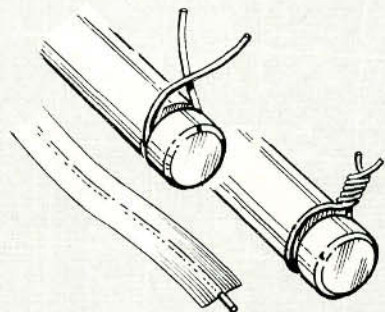
PIT TIPS



TRIMMING AROUND CURVES

It's almost impossible to do a good job of trimming out the fender wells on polycarbonate car bodies, but there's an ideal tool for the job at the dime store cosmetic counter. A pair of curved nail scissors help you cut into hard-to-reach places. (No need to buy the most expensive!)

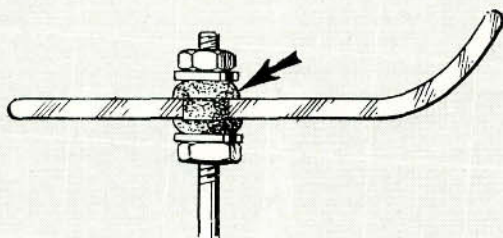
Ken Evans, Sugar Land, TX



E-CLIP SUBSTITUTE

If you've lost your last spare E-clip, a bread-wrapper wire twist-tie is a good alternative. Wet the paper, then scrape it off the wire, which will fit nicely into the groove, where it should be wrapped around once and then twisted as shown.

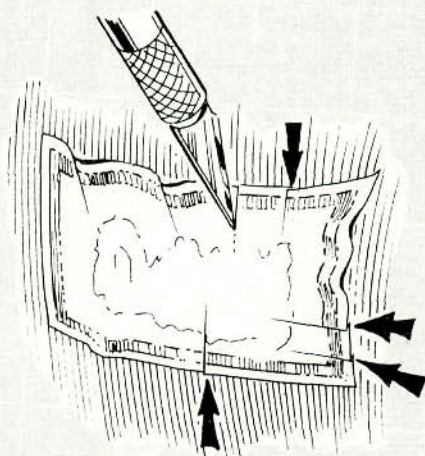
Jake Kaplan, Brookline, MA



WING SAVER

Vibration and roll-overs destroy some plastic wings, but they *can* be protected. Take a couple of the spare, rubber, servo grommets that come with your radio, then fit them on your wing by opening the holes to make them fit. The sketch shows the grommet (arrowed) with a washer, top and bottom. Tighten down the nut until it's just starting to compress the rubber, and your wing troubles will be over.

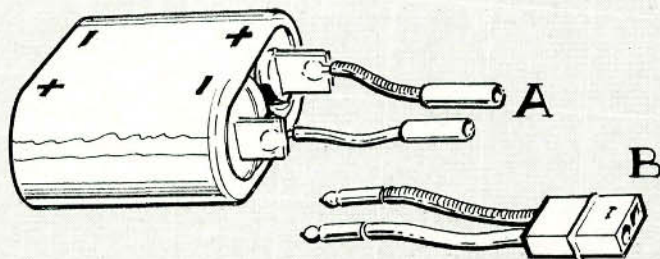
Clint Brackman, Salem, VA



CURE FOR WRINKLED DECALS

When you apply a large decal to a curved surface, it will invariably have tucks and wrinkles along its sides. Before the decal sets, using a new hobby blade, cut slits as shown here, then firmly press down the overlaps with a moist tissue. Bubbles can be pricked with a needle and the air worked out through the hole. You could also try Micro-Sol and Micro-Set when applying decals. These products are used extensively by those who build plastic models, and they eliminate many of the difficulties encountered when applying decals.

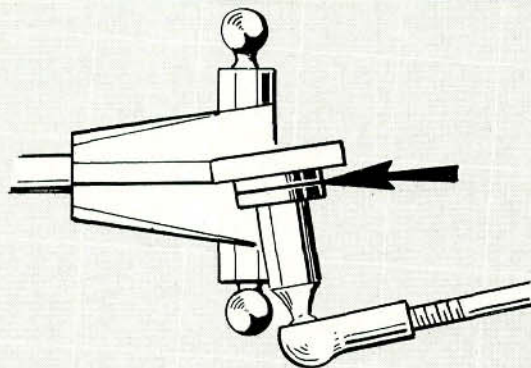
Bonifacio Antonio, San Diego, CA



SAVE THOSE D-CELLS!

Instead of buying dry D-cells to break-in your new or rebuilt motors, why not take a couple of your old (but still functional) Ni-Cds and make a 2-cell pack for the purpose. They're rechargeable, so you won't have to keep buying dry cells. Note the little adapter cable that plugs into the sockets (A); the plug (B) should fit your charger.

Steve Biles, McMinnville, TN



HOTSHOT BUMP-STEER CURE

I've heard that the Hotshot and Supershot have a bump-steer problem, and Chris claims a significant reduction with this modification. Sandwich a couple of 4mm washers between the steering block and the ball connector (see arrow). Replace the stock servo-saver with a Tamiya, directly connected, servo-saver (no. 1204), and attach the links to the saver's upper left and upper right holes. Chris also tells us to use Du-Bro 2mm swivel ball links (no. 368), but he admits they have to be forced onto the 3mm rod.

Chris Chow, Cupertino, CA

P R E V I E W

ADVANCE ENGINEERING
MAGNUM 10**LOADED TO GO!**

LONG KNOWN for its 1/10-scale Custom Street Machine, Advance Engineering* now enters the racing market with its Magnum Series cars.

The Magnum will be released in both 1/10 scale and 1/8 scale, and (with the obvious exception of size) the cars are very similar. Advance has done away with the traditional T-plate design by using a five-link

suspension, and a pair of oil-filled coil-over shocks handles the dampening.

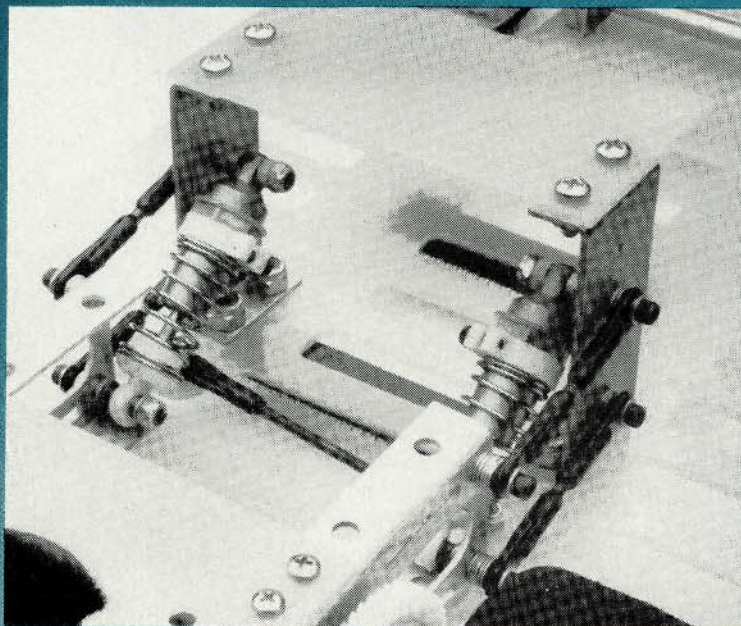
On the front of the motor pod, there are four attachment points for the linkage rods that keep the pod aligned during up-and-down movement. The fifth rod, or "panhard rod," of the five-link suspension is used to center the pod from side to side. (This type of sus-

suspension was used successfully on Composite Craft's Predator Lynx.) For dampening, the Magnum cars use two diagonally mounted, oil-filled, Associated* shocks, which are the same as those used on the front of the RC10. The sides on the prototype pod are of thin alu-

minum, but Advance says they will, in future, be made of a thicker stock to prevent them from being damaged during collisions. The slots for the motor are longer than average so that larger spur gears can be used for higher ratios, and they're cut into both sides of the pod for use with the Hyperdrive system. A steel rear axle includes a pro-type, three-bearing, ball differential and, although the prototype is shown with 1/8-scale Advance wheels, the kit will include hubs designed for almost any 1/10-scale wheels.

The front end has a standard 1/10-scale suspension with a solid bar axle and kingpins, but for a little more beef, the 1/4-inch axle on the prototype will be increased to 5/16 inch.

For the weight-conscious, the Magnum will be available with a graphite chassis—a

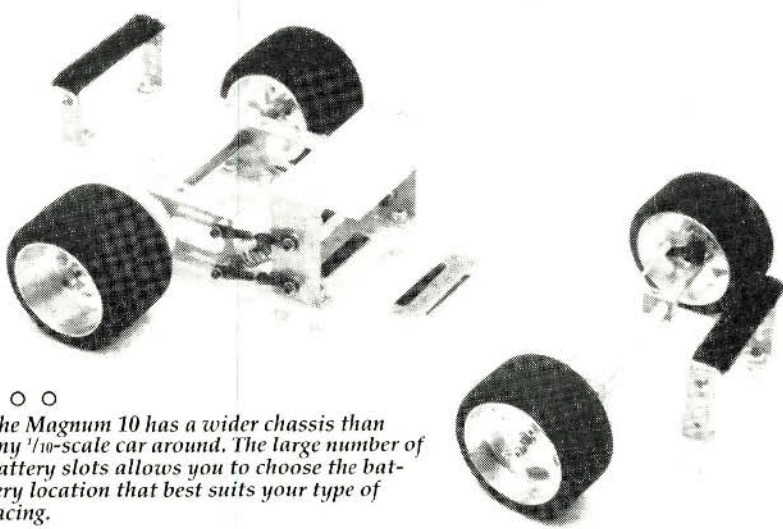


○ ○ ○ ○ The multi-link suspension is a departure from the conventional T-bar design; we'll see how it works! Two Associated shocks provide rear dampening.

standard for hard-core racers. This chassis will be considerably stiffer, and it should meet the 42-ounce minimum-weight requirement. The Magnum's fiberglass chassis and its graphite chassis are much wider than those of most other on-road cars, and to allow weight biasing for every conceivable track condition, 18 battery slots have been cut into both.

Since I've only seen the prototype and haven't run one of the cars yet, I can't describe its performance, but I know the Magnum's features have worked well in other on-road cars.

It won't be long before we can get our hands on one of the Magnums for a



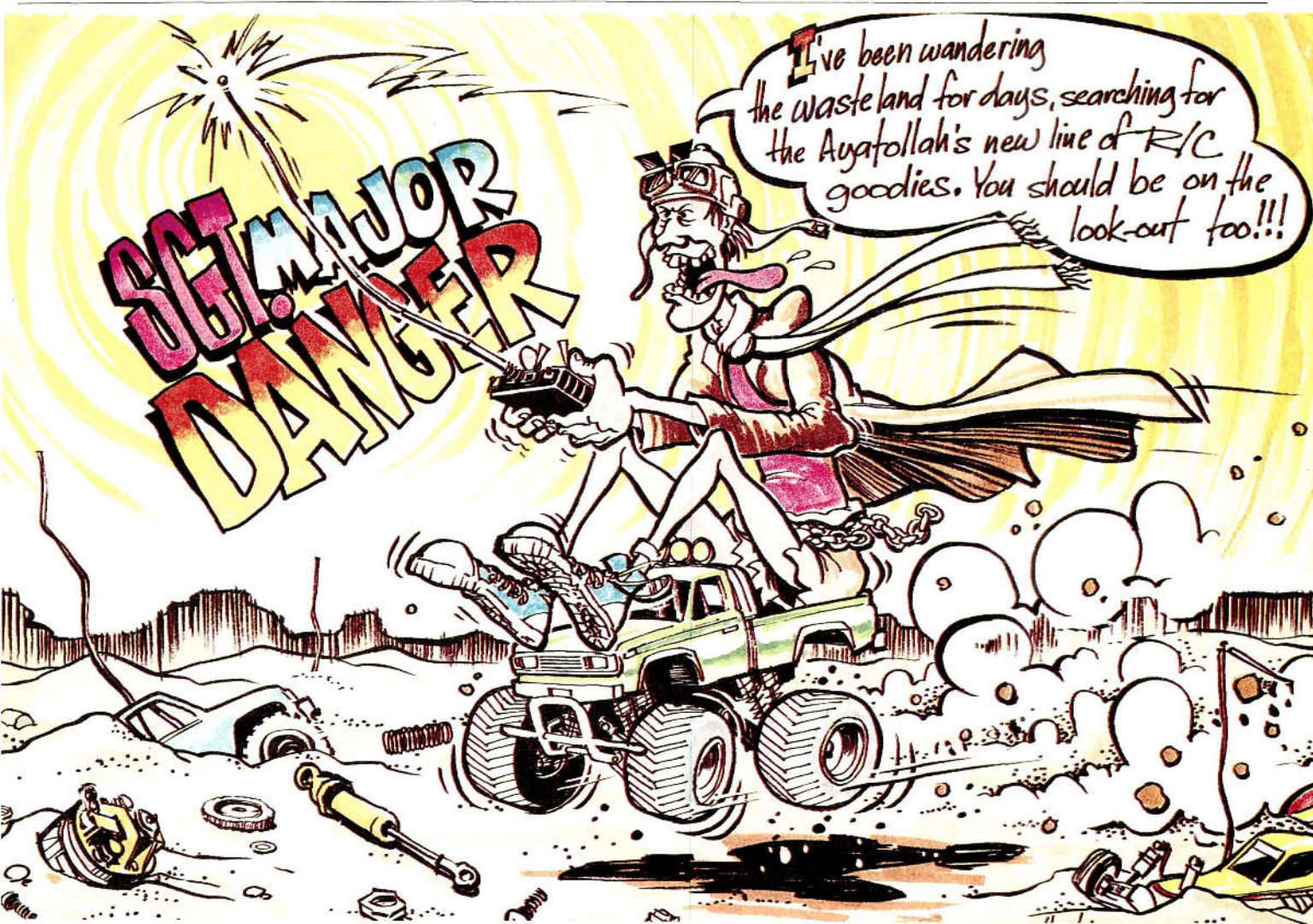
○ ○ ○ ○

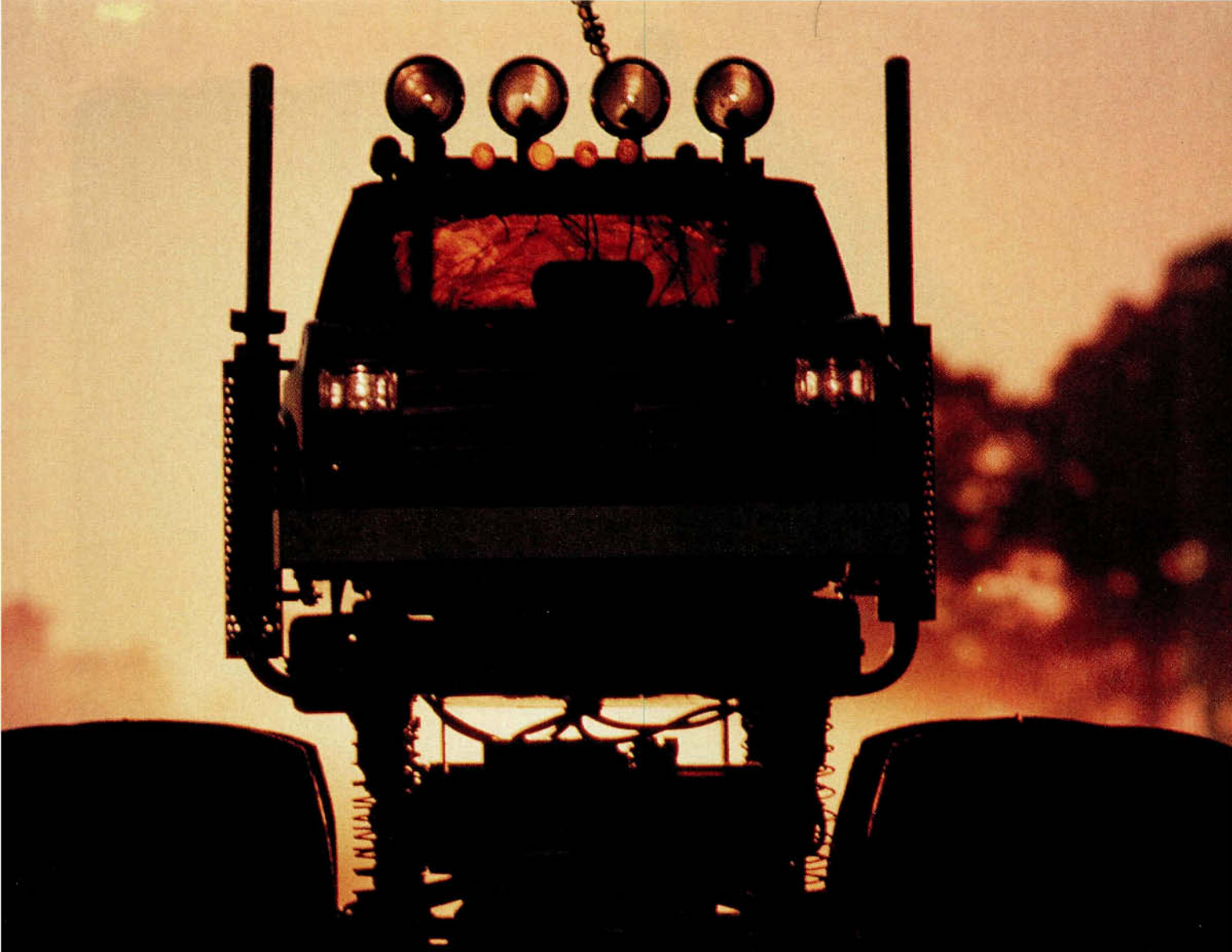
The Magnum 10 has a wider chassis than any 1/10-scale car around. The large number of battery slots allows you to choose the battery location that best suits your type of racing.

full track report, so stay tuned!

**Here are the addresses of the companies mentioned in this article.*

Advance Engineering, P.O. Box 766, Woodland Park, CO 80866.
Associated Electrics, 3585 Catalina Ave., Costa Mesa, CA 92626. ■





THERE'S NO DOUBT in my mind that the Tamiya* Clod Buster is the biggest, baddest truck on the market. In the two years since its debut, no one has managed to top it, but I'm never satisfied. I wanted something that was the antithesis of the word "clod"; I wanted a truck that was dressed to the nines and as nimble as a wide receiver looking for a winning touchdown. The Clod Buster is still the best in its class, so I used it as the platform for my dream machine.

Armed with my reference

P R O J E C T

MAXIMUM CLOD

by BILL O'BRIEN

library (copies of Car Action's Buyers' Guide and Monster Truck Buyers'

Guide, and the last three monthly issues of Car Action), I began to hunt down

LIVING LARGE!



Above: The hood tilt kit required the use of a 3-channel radio system, but no full-blown Clod should be without it.

Below: With the Stormer 4:1 gear-reduction units in place, action shots became slow-motion shots.

Clod Buster accessories. You can see the fruits of my search in the photos, and I think you'll agree that the truck produces a startling effect (even more startling if you try to lift it!).

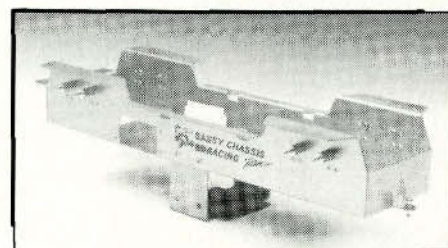
SPINAL SURGERY

The backbone of any vehicle is its chassis, and the Clod Buster's stock plastic chassis needed something extra to be perfect. I had already

installed an Aerotrend* chassis-stiffener kit and was looking at an ESP* lift kit when I happened on an ad from Sassy Chassis*. This company manufactures an all-aluminum replacement chassis that's anodized in a variety of colors, including bare aluminum. It eliminates the need for a stiffener kit and, because high and low shock-mounting holes are drilled into the chassis, you won't need a lift kit if you decide to raise things a little. The chassis is very well made, and if it's the only change you make to your Clod, it won't cause any problems.

Sassy's version of the Clod chassis is

(Continued on page 30)



The backbone of the Maximum Clod is the aluminum chassis from Sassy Chassis, which replaces the stock unit. It comes anodized in a variety of colors and eliminates the need for a stiffener or lift kit.



KODAC

V

ILM

(Continued from page 28)

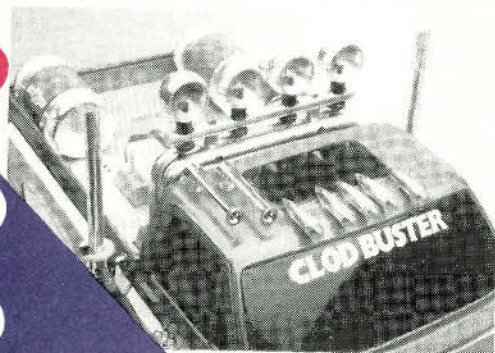
stylized, however. In the stock chassis, there's a well where you mount the steering servo; in the Sassy version, there's simply an aluminum stirrup that's riveted below the main tub. The steering

rods have greater freedom of vertical movement, but the servo is totally exposed, so mud bogs become dangerous rather than just messy.

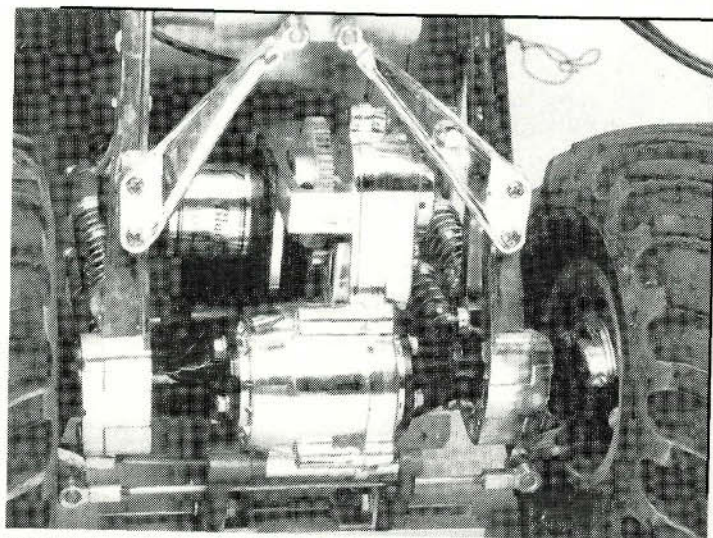
Sassy Chassis has also moved the battery farther forward, which is good for weight transfer, but it requires you to

move the power/economy-switch cutout to the same side of the chassis as the radio on/off switch. You'll also have to rotate the entire radio tray 180 degrees to make it fit properly. This puts all the wiring in one place, but if you're reaching around from the other side of the truck, you're likely to flick the wrong switch.

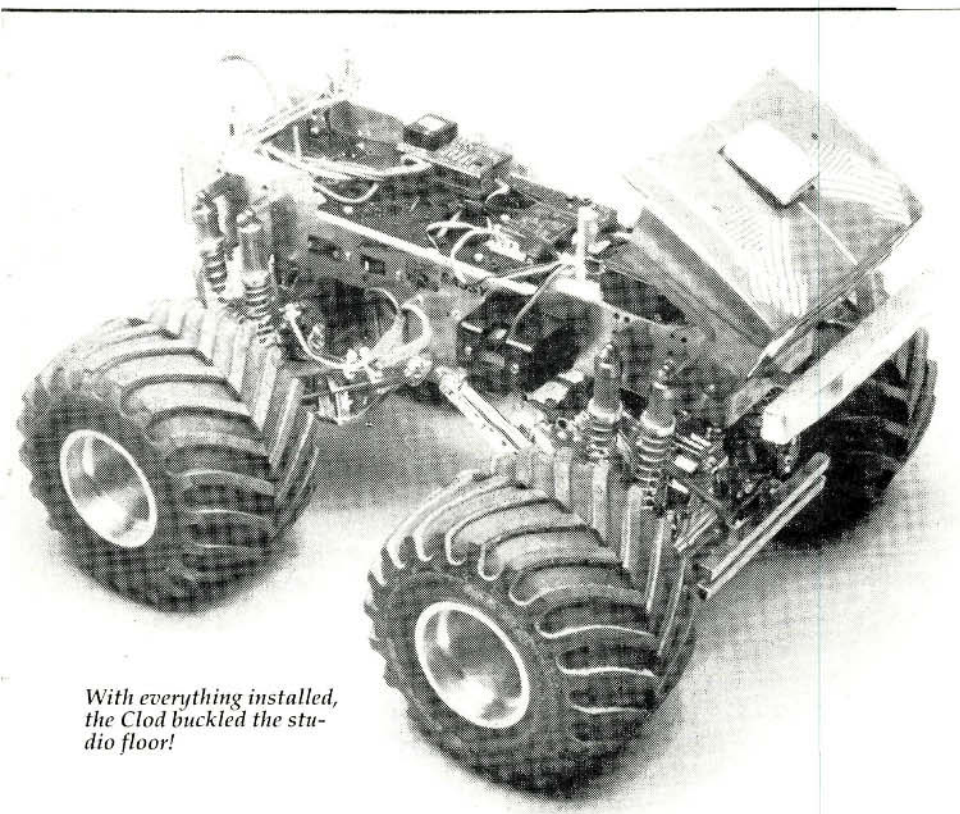
Because the chassis isn't an exact duplicate of the original, there are some other discomforts, but they'll only show up if you add on other parts, as I did, and as you'll see.



The roll bar with functional fog lights, combined with the working cab lights and non-functional air horns and smoke stacks, make the roof the most impressive area on the Clod.



Chrome suspension parts, a 4:1 gear-reduction unit, and Black Magic power make the Maximum Clod a show-and-go beast!



With everything installed, the Clod buckled the studio floor!

SUSPENDERS

Because of the weight of the new chassis and the batteries I wanted to use, I could tell that the stock shock absorbers would be a really weak point. Tamiya has plastic, yellow, oil shocks that can be used on the Clod and, with a lift kit, any of the standard-length long shocks are also a possibility.

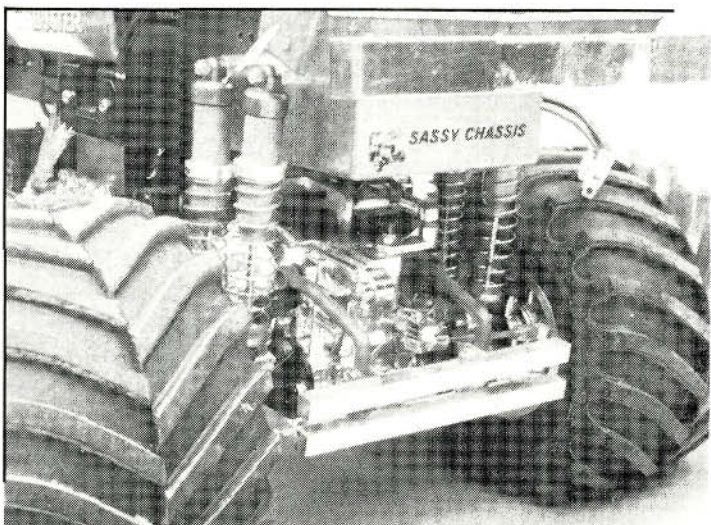
Instead, I chose to use some nifty blue shocks that Trinity* manufactures specifically for the Clod Buster. They're a

well-kept secret—I discovered them by accident. You have to assemble the shocks (which come in packages of four), and the documentation is useless, aside from giving you an overview of what the assembled shock should contain. There's no mention of what you're supposed to do with the nylon washers; I used them as floating valves in the outside shocks. I also bought Trinity's Clod bearing kit, which includes the

small differential bearings. A few of the other kits I've seen don't include these small bearings; you're wasting your money if you buy a kit without them.

RE-INVENTING THE WHEEL

There was no way I was going to use the stock



Trinity's nifty blue, aluminum, oil-filled, coil-over shocks replace original friction shocks. Smokin' Hobbies' beefy aluminum bumper looks sharp and adds front-end protection

BUYERS BEWARE

OF MISLEADING CLAIMS!

BEWARE of "silver plated" wire that contains no silver!

BEWARE of "13 gauge" wire that is actually 14 gauge!

BEWARE of solid connector bars that are claimed to be "superior" to braid!

IN FACT, only one company produces wire products specially designed for R/C applications.

ULTRABRAID has the lowest load resistance of any shunt connector.

SUPER 13 has the lowest resistance and highest strand count of any 13 gauge wire, 805!!

DRAGIN wire has the lowest resistance and highest strand count of any 12 gauge, 1660!

AND, ALL of our wire products are the purest possible copper, pre-tinned for corrosion resistance and fast, easy soldering.

STAGE III (313) 585-1150

AVAILABLE AT ALL SERIOUS HOBBY SHOPS

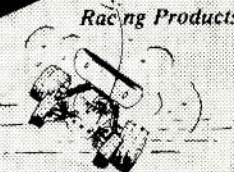
RC-10 KITS

Double B.B. Diff Tube Support Kit ..\$22.95
Q.C. Lowering Kit (Dirt Oval or On-Road)\$12.95
Transmission (or) Axle Shim Kit.....\$ 3.95

MIRACLE SPEEDWAY

High Performance
Products
Track Proven
Reliability

Racing Products



Kits for

Grasshopper or II, Hornet, Lunchbox,
Midnight Pumpkin, Rock Buster, Lazer,
FX 10, Sonic Fighter, Striker

Bullet Prof Diff Kit w/ Pin/Brgs.\$11.95
Diff Shim Kit w/ Pin/no Brgs.....\$ 3.95
Gear Case Strengthening Kit.....\$ 5.95
"A" Arm Steering Kit\$ 3.00
Heavy Duty Steering Kit\$ 6.95
Camber Adjustment Kit.....\$12.95



C.O.D.s Price + \$3.00 Shipping
C.O.D. add \$3.50

Outside Cont. U.S. Add Exact Freight - Prices Subject to Change

Dealer & Distributor **MIRACLE SPEEDWAY**
Inquiries Welcome. 300 Pheasant Dr.
Catalog \$1.00 Kalispell, MT 59901
FREE W/Purchase (406) 756-RACE

AUTOSCORE

The ultimate race scoring and race management program

- Menu driver- user friendly
- Quickly resolves frequency and number conflicts
- Sets up heats and mains in minutes
- Scores all qualifiers and mains by racer's name
- Will score up to 10 qualifiers and 1 main for each racer
- Can handle up to 1000 racers in 30 classes
- Prints complete standings by name or position
- Positions, lap times and speeds continuously displayed
- Runs on IBM pc or Compatible
- Only \$250, PRO version \$450
- Can be used with the AMB scoring system
- 1/4 scale version also available

Used by
R/C SPEED WEEK
NORRCA
R/C THUNDERDROME
AND MANY MORE

Send for **FREE** demonstration disk
(Include \$1.00 for shipping & handling)

B & B Software - 2146 Palomar Ave
Ventura, Ca 93001 (805) 643-2042

MAXIMUM CLOD

With the motors and reduction gears, the Clod doesn't just move—it jumps off the line!

plastic wheels, so I went to Advance* for aluminum wheels and Clod Buster hubs. These wheels are awesome to behold, and they can be polished to a near-chrome sheen. You should drill breather holes in the rim behind the hub, where they won't be seen. Without these holes, you might have bouncing problems or blow-outs. This was my first run-in with CNC (Computer Numerical Control) machining. This is supposed to be an accurate manufacturing system, but one of the hubs was a millimeter larger than the center hole in the wheel, and I spent an interesting half hour carefully trimming the hub down to size with a flat file.

ROLLING AND BUMPING

I turned to Smokin' Hobbies* for the double roll bar, the fog lights and the front and rear bumpers. The bumpers are diamond-plated on top and they really look good. The rear bumper even comes with a step plate and a pivot ball installed. (Don't use this ball as a pulling hitch! Any good sled will pull off the bumper and the rear of the body.) The circular fog lights are mounted on the roll bar with their own mounting block.

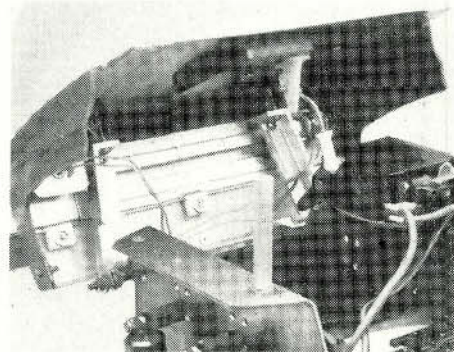
Another product of CNC machining (which I'm beginning to suspect stands for "Certainly Not Correct"!) is the separate, milled pieces of the roll bar; they fit together so poorly that you can only loosely assemble the bar so it bends and stretches in place when you install it. The installation instructions clearly tell you to do it that way, but you won't realize just how loose it has to be until you try. It works in the end, but there's no way to tighten up all the loose bolts! If you're not careful, there will be some play left in the bar, and I wasn't a happy puppy when I was done.

CNC'D AGAIN

APM Hobbies* was another source of aluminum goodies, including a great-looking bed cover. I opted for the diamond-plate version to match the bumpers, but polished aluminum is also available. Skid bars also came my way, along with air horns (physically accurate but unfortunately non-functional) and side exhaust stacks with heat shields.

The stacks weren't exactly to scale, and the instructions didn't seem to have a Clod Buster in mind, but they did fit. APM sells them as generic aluminum parts; they aren't meant for any one particular truck. APM is working on a functional smoke system for the stacks and a replacement steel-gear set, which may be available by the time you read this.

I was skeptical at first about the cab-light system and, indeed, the five cab lights are slightly larger than scale, but the result was worth the effort of drilling holes in the roof. In fact, when I did the preliminary check on the cab and fog lights, the overall appearance encouraged me to buy Tamiya's headlight sys-



To create a remotely operated tilting hood, the Maximum Clod uses a servo and the hood-tilt kit from APM.

tem as well. If you want to attract attention, the lighting system is the icing on the cake!

APM was also the source of one extravagance: a tilt-hood kit. With a third radio channel, the kit permits the front end to be raised and lowered—another "wow" item. The instructions are terrible, but APM is rewriting them. You won't find any way to connect a servo to the hinges or the hood; I had to buy some piano wire and an airplane aileron horn to finish the installation.

Installation is even more difficult if you have the Sassy Chassis. The kit requires considerable fabrication, because Sassy left off the front reinforcement tabs that the stock plastic chassis requires. APM says it's working on its own aluminum chassis to fix the problem.

(Continued on page 122)



WALT'S HOBBY

"Call Walt's"

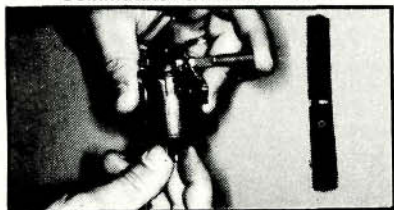
Full line radio control hobby complex specializing in friendly, expert service for remote control cars and accessories. UPS service, discount prices, all major credit cards. Two indoor tracks (clay and carpet), pulling pit, outdoor track, computerized scoring.

2 Dwight Park Dr., Syracuse, NY 13209. Tel. (315) 453-2291.



EDGE
PRODUCTS

Commutator & Brush Cleaner



Increase your RPM

High performance cars, parts, stock and modified motors available.

Call **(805) 324-1090 Price \$495**

plus .75¢ S&H to Edge Products

2520 H Street, Suite D - Bakersfield, CA 93301
Dealer Inquiries Welcome

DIRT DIGEST

by BILL O'BRIEN & BOB KANE

COURT JESTER ENTERTAINS THE KING

WE'RE SURROUNDED by trucks this month—a little like an old Chevy Impala sitting in the middle of a line of cars waiting to be crushed. Well, according to my "Zen and the Art of R/C Cars" book, in a situation like this, it's better to *join* the crowd than get stomped by it. So I'll put aside the information on the RS 200 drive shaft, which I promised last month, and I'll look at some of these heavy-metal beauties.

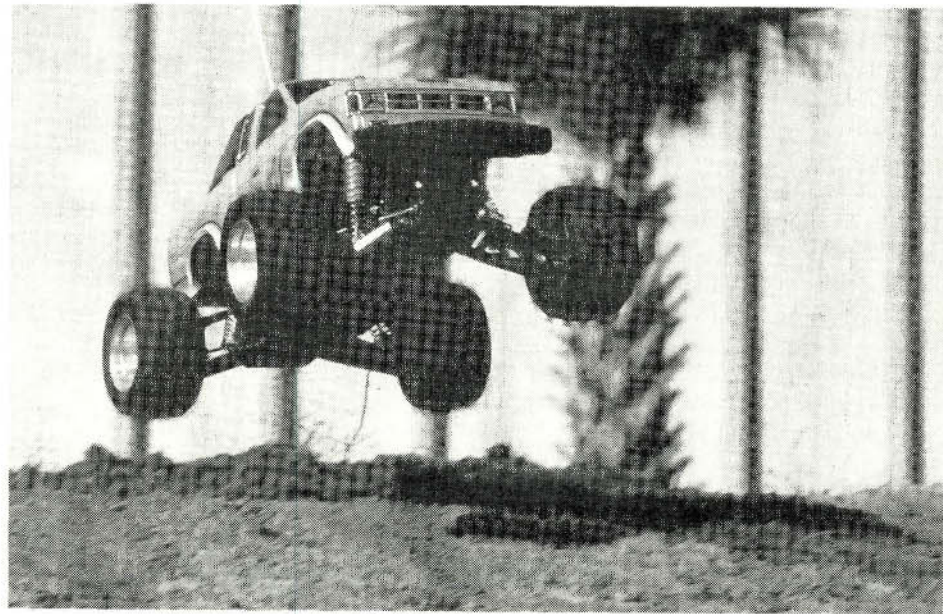
THE KING

If you haven't already seen it, look for the review of the Tamiya* King Cab in this issue. It isn't surprising that MRC says it sold out its initial inventory of this truck. If you buy one, splurge a couple of extra bucks to get all the bearings the truck needs. Differential bearings are supplied, but eight more are needed for the front wheels and rear axles.

But don't stop there!—take a close look at your truck. The King Cab has some odd features: most are well done; some need attention; and that's why we're here!

DIZZYING HEIGHTS

Whether anyone wants to admit it or not, Tamiya's King Cab is the successor to the Blackfoot—mind you, the old 'Foot was no slouch in the get-up-and-go



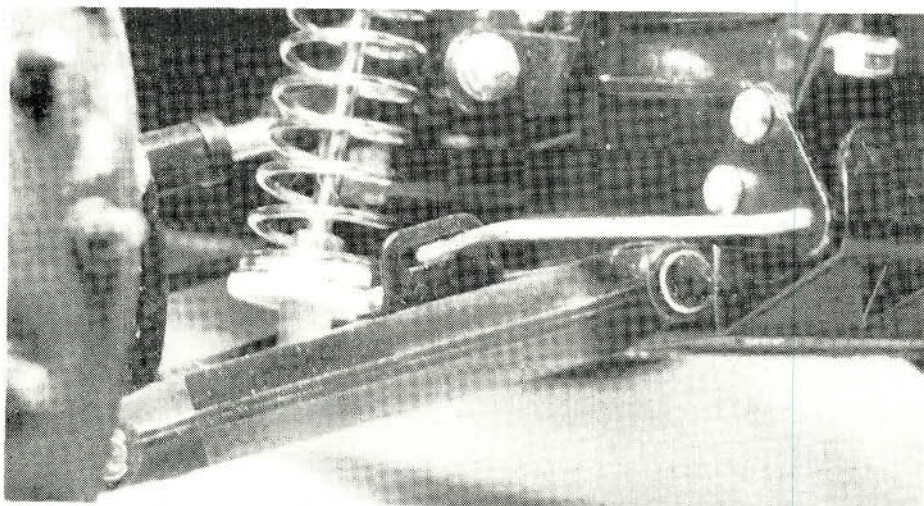
department: *R/C Car Action* pegged it as the fastest of the 1/10-scale beasts, and everyone who owns a Blackfoot will happily attest to the truth of this. Building an even faster truck—as they did with the King Cab—meant Tamiya had to make a few modifications.

The most obvious changes are to the King's wheelbase and track, which are .5 inch longer and 1.5 inches wider than the Blackfoot's. These increased dimensions will improve the truck's stability—something the Blackfoot notoriously lacked!

Tamiya has kept the same ground clearance, almost as though they couldn't decide if the King should be a stadium racer or a racing monster truck. If you want to maintain it as a monster truck, you need go no further; you're already there. Racing trucks also require less of the stiff-legged, high-arched-back attitude shown by this truck.

First and foremost, you must bring that thing a little closer to the ground; all that air under the truck is useless when you're racing. The shocks included with the King Cab are 104mm long; and the maximum shock travel is 29mm (these are approximate, but close). The A-arm can be made to travel the full distance, but at that compression, you're starting to stress the arm. You might need that degree of compression coming off a high jump, but even though trucks in flight look great, the last time I checked out a race course, the truck that covered the most distance horizontally was the one that won the race. Frequent-flier miles just don't count!

Although there's quite a variety of available shock absorbers, I opted to stay with Tamiya's yellow plastic shocks because they're serviceable, relatively cheap and come in many sizes. I selected the 90mm version (measured from the center



The anti-sway-bar mount could use some re-designing. As is, the end of the bar floats, and it isn't as effective as it could be.

DIRT DIGEST

of the eye holes), put its shorter piston rod into the longer shock and ended up with a length of 100mm. The 4mm difference (almost $\frac{3}{16}$ inch) is just enough to bring the King's head down out of the clouds.

Be sure to use the heaviest spring you have; use a two-hole piston valve; and add a 10mm spacer to the shock body to increase the spring tension even more. A narrower shock body would be better, since there's a clearance problem between the suspension rod and the shock, but the Tamiya shocks will do.

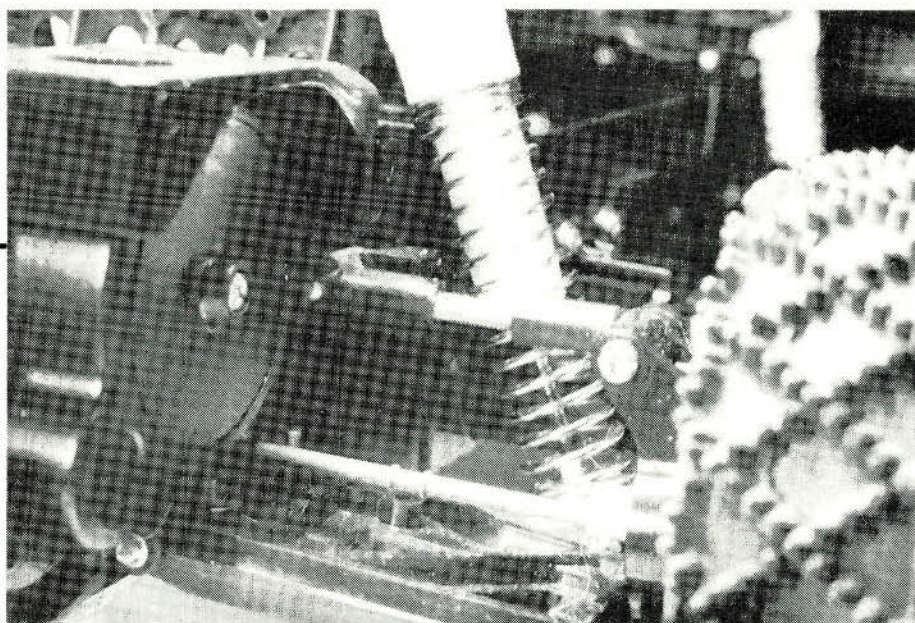
If you like to play it really safe, cut four $\frac{1}{8}$ -inch lengths of fuel tubing and use them as bump stops on the shock pistons. As well as preventing the chassis from bottoming out, stiffer rear suspensions typically decrease *understeer*, while stiffer front suspensions tend to decrease *oversteer*.

To lower the center of gravity, you must get the body down lower on the chassis. This takes more work than I care to go into here, but it should be done. If you plan to experiment and start chopping up the suspension/body-post blocks, make sure you have spares on hand. (I never put a knife or a saw to any part if I would need to reach out more than 5 inches for a replacement.)

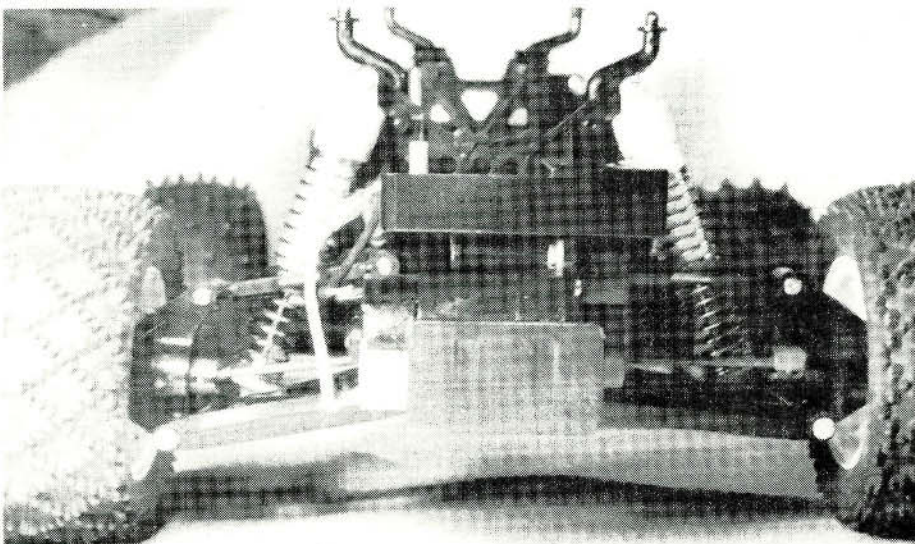
ABANDONING THE STRAIGHT AND NARROW

When the chassis height has been reset, readjust the camber on the wheels to maintain the original settings. Toe-in seems to be a major factor with the King Cab's handling. Tamiya has built about .375 inch of toe-in into the rear wheels (track at the back of the rear tires is 10.125 inches, while track at the front of the rear wheels is 9.75 inches); that isn't adjustable, but is used to increase the truck's turning ability.

At the front, you can adjust the toe-in to keep the King Cab tracking straight. The greater the toe-in (equally applied to each front wheel), the better the truck will track, but you can overdo it. Having too much toe-in is like trying to run with your shoelaces tied together: it takes a lot more effort than it should, and it looks as funny as heck!



An upper control link is used to adjust the camber. You may want to replace all rods with turnbuckles.



A rear view shows the right side with the shorter shock rod, while the left side is stock. Note that the left side ride height is higher than the right side.

GETTING TIRED?

I love knobby tires, and that's how the King Cab is equipped. Unfortunately, many East Coast tracks are made of a clay composite on which knobs just don't work well. Even our wonderful playgrounds are filled with what I call "urban blight"—hard-packed dirt topped with only a thin layer of loose dust, which is equally unsuitable for knobs.

Luckily, the King Cab's wheels have the same diameter as the Blackfoot's, and they can therefore use the same range of tires. If you find yourself with nothing but that hard-packed ground to run on, try diamond-spike tires. Available from JG* or DuraTrax*, they have very small pin spikes arranged in a diamond pattern and, in a pinch, they will allow you to run reasonably well on-road (ugh!).

REINVENTING THE WHEEL

Now for the King Cab's wheels. At the rear, Tamiya uses hexagonal drive nuts of the same size as those Kyosho uses on its cars, and up front they use Blackfoot-length axles. I usually recommend Bru-Line* Super System wheels, but the length of the King's front axles is prohibitive. Bru-Line claims to have spacers that will accommodate their length, but I've never seen them in any store. (The 1990 Tower catalogue lists a "Bru-Line Monster Beetle hub"—part no. 4010—that should work, but I haven't tried it.)

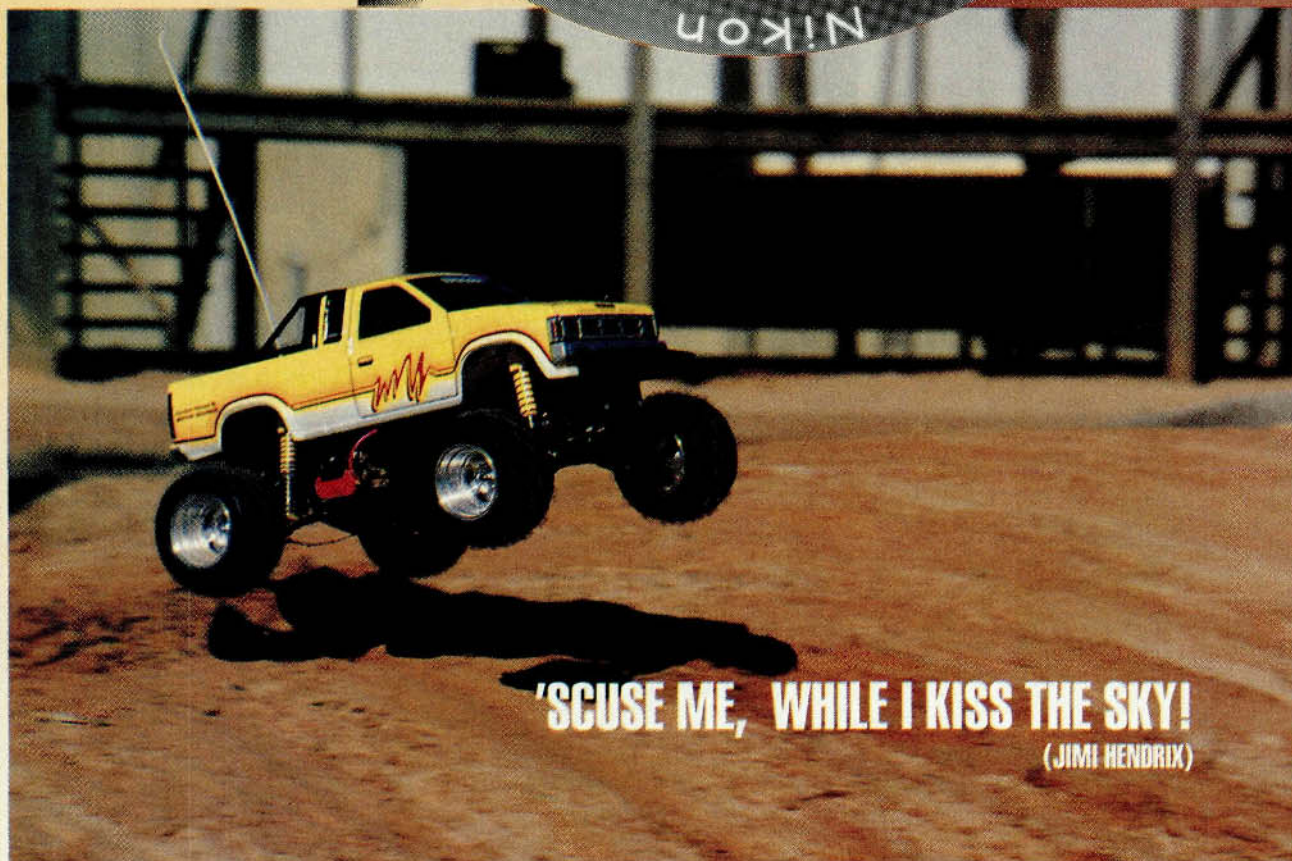
You really need to reduce the wheel's diameter to something more reasonable (in the 1.9- to 2.1-inch range), and the ultimate solution might be some Advanced* aluminum wheels with Kyosho*

(Continued on page 164)

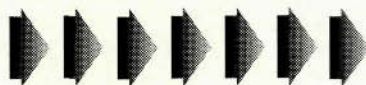
TRACK REPORT

GUNNING FOR THE TOP

by STEVE POND



'SCUSE ME, WHILE I KISS THE SKY!
(JIMI HENDRIX)



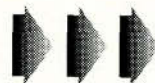
GOOD THINGS DON'T come easily. Throughout the history of R/C racing, the high-performance machines that dominated races have been rather complex in both construction and maintenance. To further complicate matters, instructions for these machines required a fair amount of reading between the lines. Racers who were "in the know" could usually assemble these machines without too many hitches; for newcomers, however, these cars were often frustrating.

With many R/C vehicles, manufacturers have provided detailed instructions to make assembly easy, but some-

thing has always been lost in the process. In making cars and trucks "user-friendly," manufacturers opted not to use some of the materials and components that make these racing machines so fast. So where's the middle ground?

As part of Tamiya's* renewed racing effort, its King Cab was designed for the booming monster-truck racing class. Tamiya has been the undisputed leader in the manufacture of monster trucks, but its previous kits have been largely for fun, not competition. The King Cab is a breakthrough in the Tamiya line:

KING CAB



and air above. When the shock is compressed, the oil is displaced by the shaft as it enters the chamber, and this forces the diaphragm upward. By allowing room for the oil to expand, there's no need to have any air in the shock chamber; this makes dampening much more consistent.



it's a compromise between the "user-friendly" trucks and the complex racing machines. It includes nearly all the components that make up a pure-bred racer, yet it retains Tamiya's usual simple assembly and maintenance.



the electronics much better than a flat, graphite plate would, but still allows easy access.

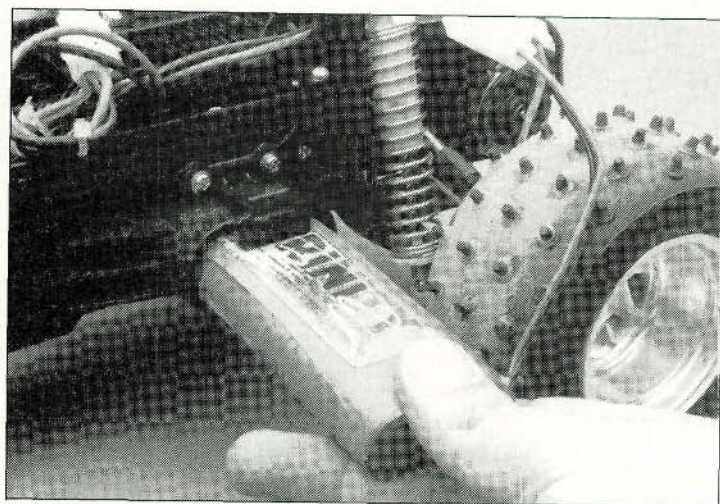
Attached to the chassis is an all-new, 4W independent suspension with lower A-arms and adjustable upper links. The A-arms are molded from a different material than the chassis, and it's more flexible and durable. An anti-roll bar connects the two front A-arms.

For dampening, Tamiya chose its yellow, plastic, oil-filled shocks as

To further improve handling, Tamiya also includes an idler-arm steering system. To eliminate bump-steer, the steering rods are attached to the steering assembly in-line with the inner pivot pins on the suspension arms. As usual, the mount for the steering servo is adjustable and it allows you to use virtually any radio system.

Toward the back of the King Cab is one of its most stunning features: a ball diff—a first for Tamiya trucks. As part of the smoothest transmission ever used in a Tamiya truck, the ball diff is similar to those seen on many high-performance cars. Attached to the ball diff is a pair of steel drive cups, which drive steel dog-bones and steel axles.

If you're thinking, "This sounds impressive, but what about the plastic bushings?"—read on. Among many other "firsts" for Tamiya, this truck comes with sealed ball bearings in the transmission and bronze bushings for the



A Trinity 6-cell pack powers the King Cab, and a set of Sees aluminum wheels adds a sparkling touch to the package.

BORN TO RULE

How does the King Cab differ from previous Tamiya trucks?—in just about every conceivable way! Tamiya designed the King Cab with a deep, injection-molded, plastic tub chassis, which protects

standard equipment, but these have substantially longer travel than those used on its earlier trucks. Each of the shocks has a rubber bladder, or diaphragm, that's placed in its cap. When the shock is assembled, there's oil in the chamber below the diaphragm

wheels. The bushings keep the cost of the kit down, so it's within the grasp of not-so-wealthy enthusiasts. For the devout racer, only eight bearings are needed to make it an all-ball-bearing rig (unless you count the optional ball-bearing steering).

Finally, to cover the whole package, Tamiya has included the most detailed body ever seen on a R/C vehicle—bar none. Tamiya has outdone itself with the Nissan King Cab polycarbonate body: every conceivable detail is molded in.

CONSTRUCTION

Construction is always a very important part of our track reports. If we run into any hitches during assembly, or find areas in the instruction manual that leave us scratching our heads, we try to steer you in the right direction. Before it ever hit the test track, a point in the King Cab's favor was that its assembly was about as smooth as it gets. The kit has the usual superb Tamiya instructions, it was a relief to put together a high-performance kit that didn't require modification of the original parts. With just a little attention to the details, anyone can build a race-ready truck.

Before building the kit, out of habit, I went to the local tool store and picked up a 3mm drill bit. I wanted to ensure that the suspension arms would pivot freely on the pivot pins, which are 3mm in diameter. I wasted my money!

For my first test of the King Cab, the three-step speed controller was the only piece of stock hardware I didn't use. Instead, I opted to use the Tamiya Adspec radio system, which comes with a

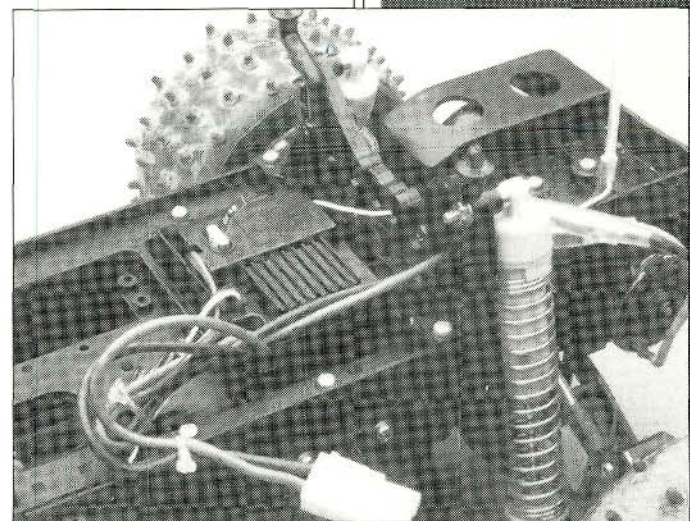
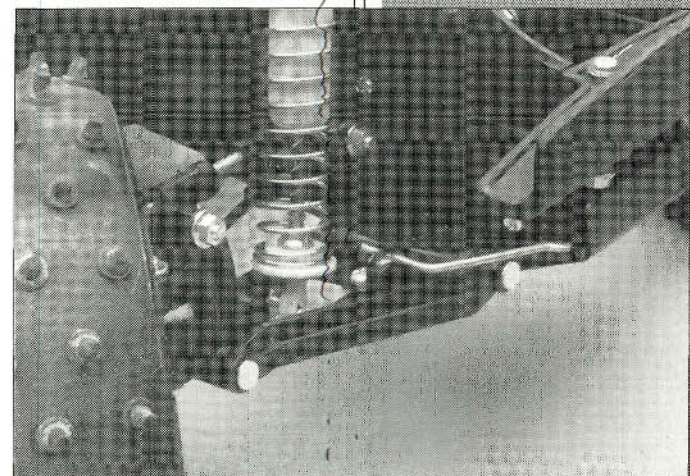
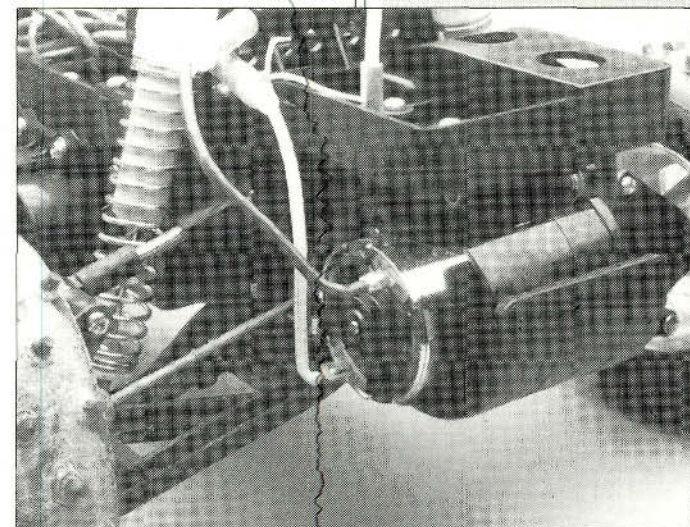
combination ESC/receiver. This greatly simplified construction, because it eliminated the stock speed controller, the second servo and the ceramic resistor that accompanied the three-step speed controller. With the exception of the steering servo, the entire electronics installation was whittled down to a piece of two-sided servo tape!

The Adspec radio system's transmitter has a unique design: it has an adjustable hand grip that allows you to tailor the radio to the size of your hand. This is an awesome feature when your hands are as big as mine! The usual bells and whistles are also included, e.g., servo-reversing, steering and throttle trim, dual rate for the steering, and a feature that's unique to the Adspec: a stopwatch that's built in to the steering wheel. The stopwatch isn't much use when you're racing, because you can't take the time to look down at the wheel, and the lap timer doesn't time individual laps, nor does it count the number of laps. The lap-timer button only gives your accumulated time when you press it each lap. The timer, however, can be used to check how much run time you're getting (if you have the presence of mind to stop the clock when you're finished!).

FINISHING TOUCHES

The final step was painting the body, and to finish the finest Lexan body around, I chose the detail kings at Motion Graphics*. With only a few days to paint it before testing, Richard Muise, the Paint Master General of Motion Graphics, blessed this body with some fine lacquer. Without question, the finished product is awesome!

The good news is that you



don't have to be a master craftsman to have a sharp-looking body. You'll need four basic colors (red, white, blue and black) if you want a replica of the truck shown on the cover. With the exception of the lights and the window trim, the details are included

Top: The King Cab is motivated by a Mabuchi stock motor, which provides plenty of speed!

Middle: The front suspension looks like those on many top off-road vehicles. Oil-filled, coil-over shocks, lower A-arms with adjustable upper control links, and an anti-sway bar make it quite effective.

Bottom: The Adspec electronic speed control with reverse transfers battery power to the motor.

TAMIYA

KING CAB

Type Racing monster truck
 Scale 1/10
 Sug. Retail Price \$234.95

DIMENSIONS:

Overall Length 17.5 inches
 Width 11.75 inches
 Height 8.75 inches
 Wheelbase 10.63 inches
 Front Track 10 inches
 Rear Track 9.88 inches

WEIGHT:

Gross (w/bat.) 4 pounds, 8 ounces

BODY:

Type Nissan King Cab
 Material Polycarbonate

CHASSIS:

Type Tub
 Material Plastic

DRIVE TRAIN:

Primary Pinion/spur
 Transmission Gear drive
 Differential Ball differential
 Bearings/Bushings Ball bearings for transmission; bronze bushings for wheels

SUSPENSION:

Type (f/r) A-arm, upper control link
 Dampening (f/r) Oil-filled, coil-over shocks

WHEELS:

Type (f/r) One-piece plastic
 Dimensions (DxW) (f/r) 2.5x2 inches

TIRES:

Front/Rear Rubber spiked

ELECTRICS:

Motor RS-540
 Battery 6-cell stick*
 Speed Controller 3-step forward w/reverse

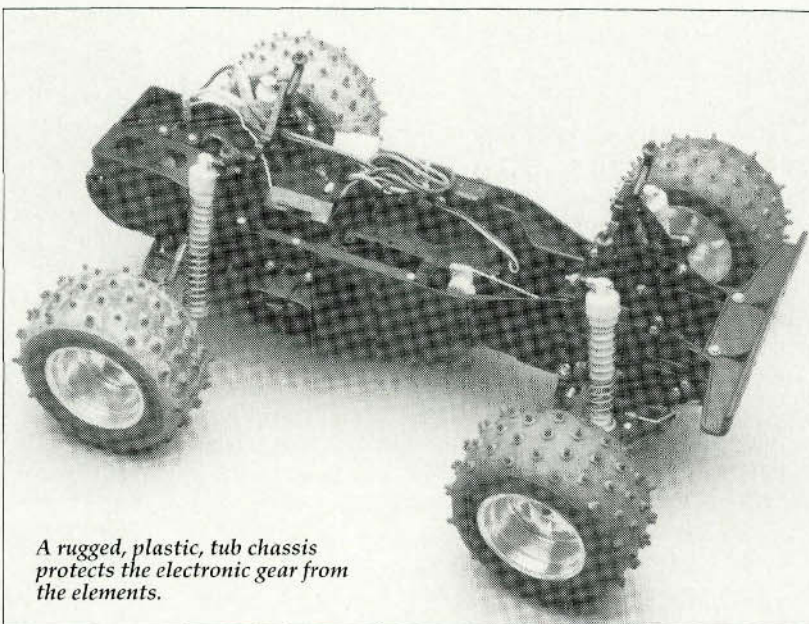
OPTIONS AS TESTED:

Tamiya Adspec radio system; Sees Precision Machine aluminum wheels; Trinity SCR 6-cell stick pack.

COMMENTS:

This is Tamiya's most competitive truck to date. Compared with conversion trucks, it has a slightly longer wheelbase (which helps its straight-line stability), and although it's about 6 ounces heavier, it's a real threat at the track. A new ball diff puts the power to the ground efficiently. The diff is rather difficult to adjust, but it will remain adjusted for a long time. With more performance-oriented electronics, the King Cab will be a very competitive truck.

* not included



A rugged, plastic, tub chassis protects the electronic gear from the elements.

on the decal sheet.

A final addition (one much to my liking) was made at the last minute. Before I could stop thinking about how nice this brand-new truck would look with some aluminum wheels, I received a fax from Sees Machine*; it informed me that Sees had just produced a set of aluminum wheels designed for the King Cab. Oh, really?! Needless to say, Federal Express was at my doorstep the next morning with some sharp-looking, directional-spoke, aluminum wheels.

LATE NIGHT WITH THE KING CAB

The truck was complete and ready to run, but I didn't have the body back yet. Anticipation got the better of me, so I gave my Trinity* SCR pack a good charge and, at 11 p.m., I headed out the front door to do some bombin' around the yard.

If you've ever driven a monster truck in the grass, you know that its high bite usually spells disaster when cornering at high speed. Not surprisingly, the King Cab lived up to my expectations—it was fast and responsive—but I was surprised by something else: each time I took a turn, I gave a little more wheel, until I was finally going lock to lock. Still on its feet—how about that?! To make a long story short, my late-night, body-less test left me

wanting to get this puppy on a track in the worst way!

OFF TO ORLANDO

Bad weather in the northeast kept the King Cab in the pits, but the anticipation was killing me—and the issue deadline was coming up fast!—so I jumped a plane to Florida!

International Supply's off-road track in Orlando, FL, was the site of the photo shoot and initial tests. The track was covered with some high-bite red clay that proved to be a prime testing ground for the King Cab. With a couple of charged batteries at the ready, track owner Lloyd Lisco enlisted Tex McDonald to pilot the King Cab for the photo shoot. One of the track's steady racers, Tex wasted no time trying to put the hurt on the King Cab. For the photos, nothing less than wide open would do, and Tex was more than willing to give it hell. After blowing through three rolls of film, Tex had to run; he left me with an open track and many fresh batteries.

My turn! The King Cab lived up to its billing—what a racer! With the help of the anti-roll bar, its wide stance gives it extremely sure footing. Through the turns, it leans a little toward the outside and gives a little push. The battery is fixed in one location, so you can't manipulate the weight to improve han-

TAMIYA'S BALL DIFF!

dling. By experimenting with shocks, caster and toe angles, however, you can dial the truck right to the track.

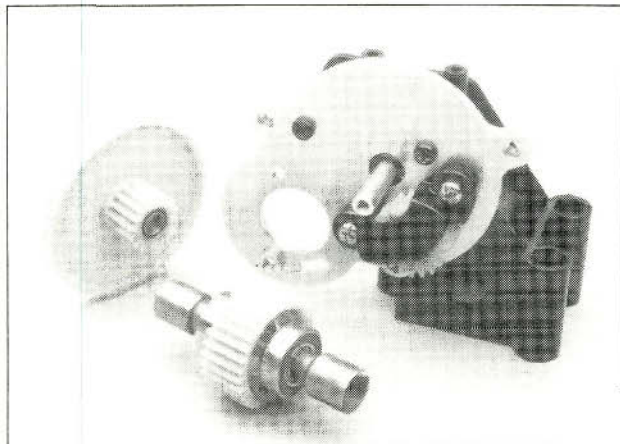
Catching air was a new experience for a Tamiya monster truck. Unlike its predecessors, the King Cab took the jumps—even the table-tops—in stride. With a properly set suspension and a good approach, the King Cab soared very level and hit the ground with all wheels spinning.

By now, you might have guessed that I was pretty happy with the way this truck ran. Its design is very similar to those of many of the competitive conversions and, with a little work, it should be able to keep the pace. The King Cab's disaster-proof construction can hurt it a little on the track (it weighs approximately 6 ounces more than a typical conversion), but if you put the truck on a diet, it should be right in the thick of it. A stock Mabuchi motor is included in the kit (again, to keep the price reasonable), but for the King Cab to be competitive, a hotter motor is in order.

With its performance potential,

THE BALL DIFF in the new King Cab is unique—to Tamiya trucks, anyway! It has all the features of any other ball diff: diff balls are placed in holes around the inside of the gear; two diff rings ride on hex-shaped hubs to prevent slipping (à la the JR-X2); there are thrust bearings; and Belleville washers keep tension on the rings. The feature that's unique to the Tamiya diff is that it's adjusted with shims instead of with nuts or screws. This makes adjustments somewhat complicated, but the shim-adjustment method has its merits.

To adjust the diff, the dogbones and the drive cups must be removed, and this involves the disconnection of the two upper rear-suspension links. With the dogbones and the drive cups out of the way, an access plate on the bottom of the chassis is removed, and the diff drops out. When it's out of the truck, three Allen-head machine screws are removed, then shims are added or removed for proper tension. This certainly isn't something you can do on the starting line when you find the



The new ball diff in the Tamiya King Cab is similar to those used in today's high-performance cars. 1

diff is too loose, but this isn't your average diff!

Many of us carry a diff wrench to the starting line when we race because, invariably, they loosen. With the Tamiya diff, however, carrying a wrench is a thing of the past.

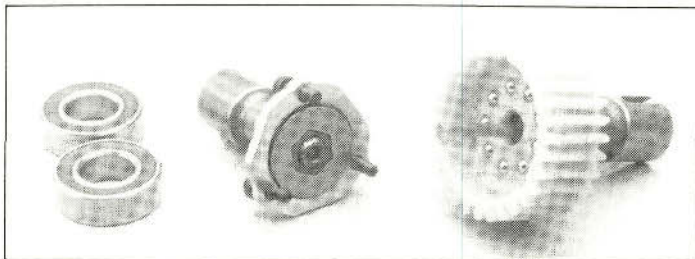
Most people cringe when they hear what's involved in adjusting this diff, but it isn't that bad. Although the adjuster nut on most diffs is very accessible, it's also very likely to loosen during a race. On the other hand, the

Tamiya diff is adjusted with shims, and these can't come loose. This means that, unless there's some type of mechanical failure, or the diff was assembled poorly, there will be no need for further adjustments after it has been set! Even if you ignore the diff tension till race day, it can be changed in three minutes.

If you set up the diff according to the instructions, there's one shim on either side behind the thrust washers. It seems to work very well, but it could stand to have a little less tension. It shouldn't slip; it should just operate smoothly. When the rings or diff balls begin to wear, shims can be added to increase tension.

The adjustment will be different with each truck, but as long as you put in the time before you go to the track, you shouldn't have to touch it during the day.

This may not be the ultimate in ball differentials, but it's one big step toward reducing maintenance—and one less wrench in your pocket!



Inside the diff, you'll find the usual diff balls and rings. Note the hex-shaped hub that prevents the rings from slipping under heavy loads.

the King Cab should be a hotbed for after-market go-fast goodies, and a graphite chassis isn't out of the question. A wider selection of gearing would also be a plus; for the time being, however, the only spurs available are the 70- and 77-tooth gears that are included in the kit.

This is undoubtedly Tamiya's best race-bred truck; given time, I

wouldn't be surprised to see it regularly in the winners' circle!

**Here are the addresses of the companies mentioned in this article:*

Tamiya/MRC, P.O. Box 267, Edison, NJ 08818.

Motion Graphics, P.O. Box 1590 Westminister, MS 21157.

Sees Precision Machine Works, 1414 West 134th St., Unit 2, Gardena, CA 90249.

Trinity, 1901 E. Linden Ave., #8, Linden, NJ 07036. ■

COMING
NEXT
MONTH!

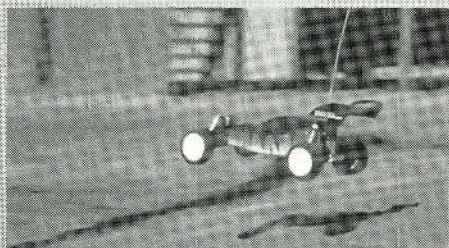
TOP TEN

ISSUE!



FEATURES

Top Ten Cars
Top Ten Drivers
Monster Truck Racing, Pt II



TRACK REPORTS

Schumacher Pro Cat
Kyosho Big Boss
Bolink Eliminator Gold

COLUMNS

Scoping Out
Dirt Digest
Pole Position

TROUBLESHOOTING

Welcome to "Troubleshooting"! If you're having a problem that your hobby shop or racing friends can't resolve, give us a shout at Car Action, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to:

Troubleshooting, c/o Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897.



ILLUSTRATIONS BY RICK HOUDE

DEMON GLITCHES

Help, please! I own a JR-X2 and use a Futaba 2PB Magnum Sport to control it. The problem is that, at 69 feet, my car is uncontrollable. The power is supplied by a 7-cell pack running through a Novak T-4 speed control. My R102JE Futaba receiver is mounted on the chassis. Yes, I do use capacitors on the Quarter Flash stock motor. I keep the Ni-Cds in my radio charged, but even when they're fully charged, the car glitches terribly at 40 feet. I'm not having fun running it in a 30-foot area. I hope you have a solution! **Bryan Bleichner, Faribault, MN**

Radio problems are often the most difficult to sort out unless the car is right in front of you.

First, try to remember whether you cut the antenna when you installed the radio. Depending on the receiver's frequency and construction, the length of the antenna can be critical, and cutting it can cause the car to act as you've described.

Another possibility (especially with a graphite chassis like that of the JR-X2) is

that the antenna is coming in contact with the chassis. Graphite, or composite, chassis, as they're often called, are electrical conductors. If the antenna is in contact with a graphite chassis, it's likely that electrical noise that can be picked up through the chassis will cause interference, so it's best to keep the antenna isolated, if possible.

The location of the receiver and the routing of the antenna could also be causing problems. On some 75MHz radio systems, the receiver antenna is very long, and many modelers run the antenna up through the antenna tube and then wrap the excess back down, around the outside of the tube. By wrapping the antenna around itself, however, you reduce the radio's range. It's best to use some type of spool on which to wrap the excess antenna wire between the receiver and the antenna tube. You also want to keep the receiver and the antenna as far from the electronic equipment (e.g. speed controller, motor, motor leads and servo leads) as possible.

Capacitors could also cause interference; they help suppress motor "noise" only if they're attached properly. On your stock motor, there should be two .01-microfarad capacitors: one soldered between the positive tab on the end bell and the motor can; and the other soldered between the negative tab on the end bell and the motor can. For extra insurance, a 47-microfarad capacitor should be soldered between the positive and negative tabs. These capacitors prevent the motor from being a source of interference.

While you have the motor out of the car, check the condition of the brushes. If a brush isn't making full contact with the commutator (usually the result of the brush-shunt wire getting caught on the brush hood), or if the brushes are worn and dirty, excessive arcing could result, and this will affect the radio.

You might also check the radio itself or, more specifically, the crystals. If your car has been hit hard, the crystals could be damaged. To eliminate them as the trouble source, simply find someone who has a spare pair that's close to the origi-

nal frequency, install them and see if this eliminates your problems.

All these factors are potential sources of interference. Just because you got away with some of the no-no's before doesn't mean they won't cause a problem now. I've violated almost all the rules simultaneously and got away with it, but in some cases, overlooking one of them can wreck your day!

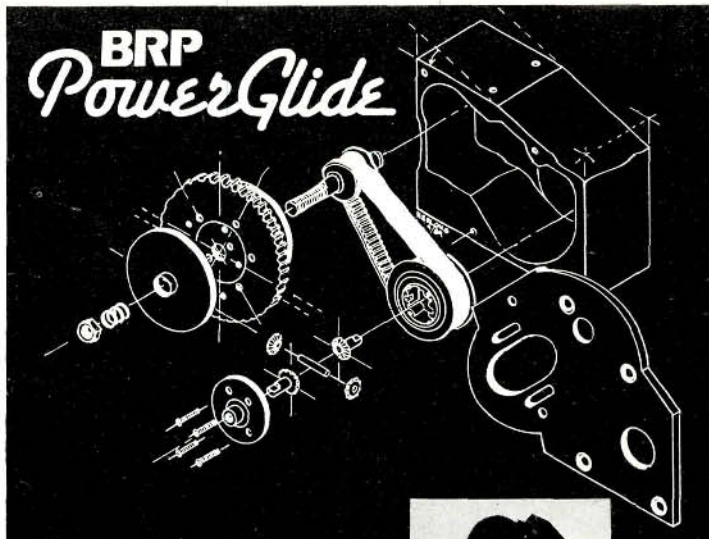


ROUGH ON EQUIPMENT

I own a Big Brute with an Option House SPA 480WT motor. I want to hook two 7-cell batteries and a PDI Hydro Zeta Speed controller to it, but I don't know if the motor can take it. Can you tell me? If it can't, could you tell me which motors would be able to handle it? **Matthew Young, Westford, MA**

We asked some industry experts to come up with a safe answer. Tony P. of Trinity feels that two 7-cell packs would destroy any 540-style motor if it was used to go bashing around the back yard. While they're used very briefly in truck pulls, running two 7-cell packs for any significant time would be deadly. Bob Boucher of Team Astro says that the Pullmaster truck motor will be able to handle the abuse. Even with a motor that's able to withstand the 14-cell combination, the gears in the transmission would probably self-destruct.

Many new motors have been designed for monster trucks (although not with two battery packs). These include: Trinity's Monster Mash, Team Losi's MTM,



5000 RC-10 Trans
5001 Ultima Trans
\$129.95



Ball Slipper Clutches



Fits:

- MIP Trans
- Optima Mid
- JRX2
- Top Cat

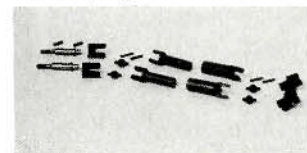
\$34.95

Features:

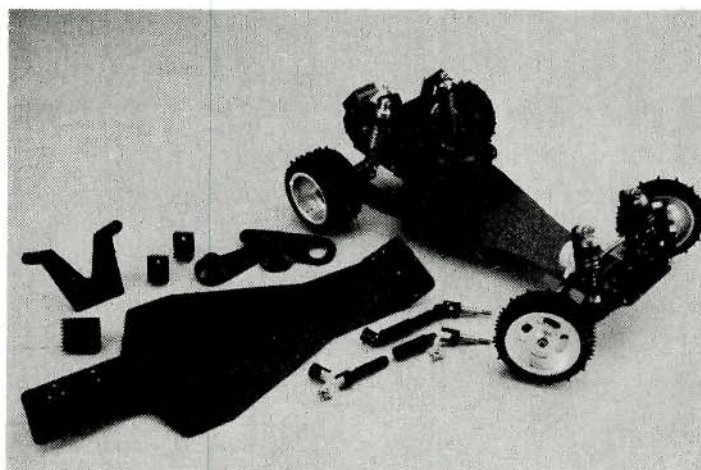
- Telescoping Drive Shafts
- Universal Joints
- Stainless Steel Axles
- For Stock & Modified
- Fits: RC-10, Ultima & Optima Mid
- Super Strong

\$56.95

Telescoping Drive Shafts



Bullet's PowerGlide Tranny has become the most awesome of all trannies available today, and when combined with the Comp-10 conversion kit—well—Industry standards are spelled BULLET.



BRP 1110 Project: Competition Kit RC-10 Kit Includes: • RC-10 Competition Graphite Chassis • Graphite Shock Towers • Graphite Trailing Arms (with adjustable castor and camber) • Telescoping Dog Bones • Stainless Steel Axles • Universal Out Drive Adapters • Motor Heat Sink

Bullet Racing Products



14435 Tomball Pkwy
Houston, TX 77086
Phone 713/444-2267
FAX 713/444-0438

R/C CAR®

7314 N. Federal Blvd.
Westminster, CO 80030

CAR KITS

RC10 Std w/bearings	\$129
RC10 Std w/bearings	169
RC10 Graphite w/bearings	189
JRX2 Std w/bearings	179
Ultima w/bearings	109
Ultima Pro w/bearings	189
Optima Mid SE	239
Raider Std	89
Raider ARR	99
Big Brute Truck	99
Big Boss Truck	119
Double Dare 4WD Truck	159
Blackfoot Truck	109
Clod Buster 4WD Truck	259
RC10L Fiberglass	109
RC10L Graphite	149
RC12L Fiberglass	69
RC12L Graphite	129
Delta P-10 3 shock	199
Delta P-12 3 shock	129

Combo Package add \$100

- Aristo 260 Pistol Radio
- 7.2 Volt SC Battery
- AC/DC Quick Charger

Package Options:

	Add
FUT Spt w/148	\$10
FUT Spt w/112B	45
FUT Jr w/148	35
FUT Jr w/132H	70
FUT Jr w/112B	75
7.2 Volt SCR	10
7.2 Volt SCE	20
Astro Flight 114	10
Protech 702	15
Protech 701	25
Protech 707	40
Protech 700	55
Protech 706	65

TERMS

Visa, MCard, Discover, Am. Ex.
No Service Charge

For Fast Mail Order Service
Use Money Order or COD

No Checks Please

Daily UPS Service

Free Shipping Over \$200
\$100-\$200 add \$4
Under \$100 add \$8
COD add \$4

Guarantees & Warranties
Handled thru Manufacturers

Must have authorization for any returns

HOT LINE
800-828-0902

(orders only)

M-F 2pm-9pm Mtn
Sat 10am-10pm Mtn
Sun 1pm-5pm Mtn

For Info & Prices
(303) 795-7229

Call for FREE
8 page catalog

TROUBLESHOOTING

Kyosho's Mega 360 Monster Truck motor, Twister's Clydesdale and the Team Astro Turbo 05. These, and other heavy-gauge, single- and double-wind motors in the 16- to 18-turn range, are good motors to start with in your monster truck. These types of winds produce more torque at lower rpm, and this helps to get those big tires moving.



EXCEDRIN HEADACHE NO. 4509

The diff on my stock Blackfoot was weak and kept slipping out, so I replaced it with a Thorp unit. The problem is that the no. 4509 axles keep breaking where the shaft goes through. Do other people have this problem, or did I just get four bad axles? I hope you—or the people at Thorp—can help. Gary Tomsik, Ingleside, IL

I've owned a couple of Blackfoots, and I've experienced this problem with the original dogbones. They're rather poorly designed, and they fail relatively quickly. As part of my "Project Blackfoot" article that appeared in the May '89 issue of Car Action, I used a Thorp ball differential and the no. 4509 axle set. Just like the set you bought, my axles also used the pin from the original axle to hold them in place. Although mine are still intact, I've heard reports that the Thorp axles break where the pin passes through the hole in the axle—just as yours did. Thorp has, however, introduced another replacement axle set (no. 4511, \$25), which no longer has holes drilled to accommodate the pin. Instead, Thorp has designed a wheel hub that clamps onto the axle when tightened. Not only does this configuration add great strength to the axle, it also eliminates the stock plastic hubs that have been known

to fail; these have been replaced by strong, precision, aluminum hubs.

EYEBALL IT?

I'm not really new to the R/C hobby, but I still have a few questions.

In a few articles, you mention that you set the camber, caster, etc., to 0 degrees. How do you measure to move a degree, and how are you sure you're at 0 degrees?—surely not by sight!

I understand how changing spur or pinion gears can affect the car's performance, but what are the major differences between 32-, 48- and 64-pitch gears? I know that it raises and lowers something! Damian Raszewski, Des Plaines, IL

On the front of every R/C car are steering blocks, and there's an axis on which the steering blocks pivot. On some vehicles, this axis (usually in the form of a kingpin) can be altered to achieve the desired handling characteristics. These axes are commonly referred to as caster and camber angles.

Caster is the angle of the kingpin or pivot point from vertical toward the back of the car. In other words, if you were looking at the car from the side, the kingpin would be tilted toward the rear of the car.

Camber is the angle of the kingpin from vertical toward the center of the car; this means that, looking at the front of the car,



the camber angle is how much the tires are tilted toward or away from the center of the car.

Caster affects the steering response. With less caster, steering is more responsive with less straight-line stability; this works well on short, tight courses. With more caster (tilting the kingpins toward the rear), there's more straight-line sta-

Venture Racing

1615 9th Street
Lewiston, ID 83501
FOR ORDERS: 1-800-325-5333
FOR SERVICE: 1-208-743-4141

BODY TRIM:

A must for all concours winners in 1990. Slotted molding bends around edges of lexan body to protect paint and body, plus add strength. Available in red, white, blue, black, yellow, hot pink, silver and four new fluorescent colors—Flo red, Flo orange, Flo green and Flo yellow. \$3.49

XXT SHOCK TOWERS:

Now you can lengthen the front suspension travel on your Ultima for better handling off the jumps and through the corners! \$11.95

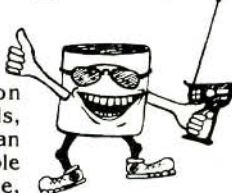
ULTIMA KV CONVERSION:

Don't buy a new car. Upgrade your Ultima to 1990 standards with a Venture Racing KV. KV kits now come with XXT shock towers to keep you in the A-Mains. \$99.00

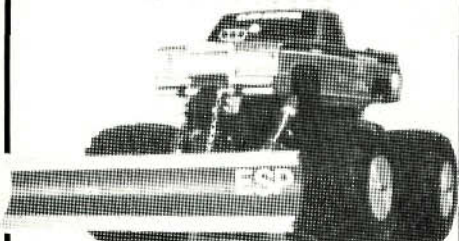
We stock a full line of R/C racing parts for all types of cars and trucks.

KOOL KOVERS:

Rip stop nylon with elastic bands, keeps motor clean and cool. Available in red, black, blue, yellow, orange and hot pink. More durable than the toughest foam filters! \$4.95



BLIZZARD BUSTER



Clodbuster Snowplow Kit

• Reg. Kit \$69.95 • W/High Torque Servo & Y-Adapter \$99.95

ESP mfg.

7105 Virginia Rd. • Crystal Lake, IL 60014

(IL Residents Add 6 1/2% Tax) 815-455-5440

\$3.00 S & H • *Outside Continental U.S. Include \$6.00 S & H

TROUBLESHOOTING

bility, but less positive steering response going into the turns; this is desirable for faster roadcourses and ovals.

For on-road cars, caster angle is easier to change. If your car pushes through the turns, straighten up the kingpins for more traction. If your car spins out in the turns, angle the kingpins backward for less steering response.

Camber has a similar effect in that it allows you to obtain the desired steering response by keeping the tires on the ground while cornering or during suspension movement. Camber can also be adjusted on the rear of many off-road cars.

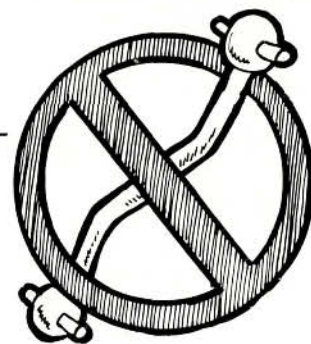
As for measuring these angles, it can be done with a degree wheel, but this isn't very common. Camber isn't usually measured: most drivers simply run their cars and make adjustments for the best possible handling. Caster, on the other hand, can be measured on some cars. Wedges with different degrees of caster are available for the Associated 10L-type front end. A variety of caster blocks is also available for the RC10, the JR-X2 and the Ultima. On-road, crossbar-style front ends are usually just adjusted by eye.

Gears are much easier to understand. The "pitch" of a gear refers to the number of teeth per inch (e.g., in a 32-pitch gear, there are 32 teeth per inch). The only physical difference between pitch gears is in the number and size of the teeth, but some gears are best suited to particular applications.

For maintaining the proper gear mesh, 32-pitch gears are very forgiving and durable. The 48-pitch gears seem to be the most popular for off-road cars: they offer less friction and more gear ratios than 32-pitch gears do, and they still seem to withstand the beating dished out by an off-road car. The 64-pitch gears have the finest pitch available for R/C cars, and they're usually used for on-road cars. (Generally, the teeth are too delicate for off-road cars.) In on-road cars, the power is delivered more smoothly and is easier on the gears. The 64-pitch gears also have the greatest number of available ratios, and this enables you to really fine-tune the car.

BEND DEM BONES

I like my RC10 very much, but I'm having a little trouble. First, my right-side dogbone bends two places. I race it at a



local carpeted oval track, and we run three heats, each 4 minutes long. By the time I've run the three heats, my dogbone is bent. Do you have any suggestions?

Second, when I run my RC10 in the driveway or in dirt, the rear end wants to swing around. Can I do anything to prevent this? Also, when it jumps, it bottoms out hard. I've tried different shock holes in the rear A-arms, and I've tried putting a lot of tension on my shocks, but the car still bounces around too much. **Tom Frankiewicz, Jamestown, NY**

Bending an RC10 dogbone when you're racing on carpet is fairly common. When the suspension is compressed, the distance between the axle and the transmission is reduced, and this pushes the dogbone deep into the drive cups, leaving very little end-play. With the dogbone at the limits of its travel, it only takes a stiff blow to the right rear wheel (the most vulnerable in oval racing) to bend the dogbone. Bending is usually the result of the nylon suspension parts giving way under the stress of the impact—just enough to jam the dogbone and bend it.

You might want to try JG Manufacturing's nerfwing which extends from the chassis beyond the right, rear wheel; it will absorb much of the impact when you hit the wall.

The handling problem you're having sounds like the result of a poor oil/spring-tension combination. For the RC10, the best starting point seems to be 30WT oil in the front shocks, 10 to 15WT oil in the rear shocks, and medium, silver springs all around. The oil in your shocks might be too light—assuming there's any at all! Moving the lower shock mount out toward the wheel will tighten the suspension, but don't tighten the spring tension.

Try using the oils I recommend in the shocks, but take care to ensure that there's as little air as possible in the shocks when they're assembled. The car may still bottom-out occasionally (depending on the size of the jumps), but the oil should make a tremendous improvement in the handling.

IT DOESN'T HAVE a ball diff, ball bearings, independent suspension, or oil shocks; so what's its appeal?

by STEVE POND

The Tamiya* Pumpkin QD is one of a line of R/C cars that has been designed for younger enthusiasts. The "QD" designation stands for "Quick Drive," and the Pumpkin could be billed as an almost-ready-to-run because most of its assembly is complete. Even more important is the fun it affords younger drivers who aren't yet ready for the demands of larger trucks and cars.

All too often I hear young onlookers at the racetrack or in the park ask when *they*

T A M I Y A PUMPKIN QD





MINI MONSTER CRUSHER

can try that neat radio-control thing. Some racers are brave (foolish?!) enough to entrust their prized possessions to these kids—under close supervision—but the answer is usually, “You’re too young!” The Pumpkin QD, and the rest of the QD line, is designed to meet the needs of newcomers who want to have fun.

THE GOODIES

The Pumpkin QD is a $1/14$ -scale, monster truck, look-alike of the $1/12$ -scale Pumpkin monster truck. The QD’s very simple design includes a solid floating axle in the rear and a one-piece floating suspension in the front. The steering servo is integrated into the front end, and the radio gear (the speed controller and the receiver) is sealed into the tub chassis. The QD’s tires are the same size as those used on the larger, $1/12$ -scale Pumpkin.

The 2-speed transmission is a clever little addition that always grabs the attention of the younger ones. There’s a high range and a low range: the low range increases the life of the batteries, but it slows the truck to some extent. The high range is for the speedster in the family.

Included with the QD is a pint-size pistol-grip transmitter that’s designed for smaller hands. (You should have seen me trying to get my finger in the trigger!) The transmitter is powered by a single 9V battery that will keep battery costs down as far as the transmitter is concerned.

On the transmitter, a collapsible antenna—just like those of the big boys!—is standard, and there’s a red indicator to show when the power is turned on. A real bonus is the transmitter’s steering trim knob. With kits in this league, the steering isn’t usually centered, and this will leave a car forever wandering. The trim knob offers an effective way to keep the QD going straight, and if it has to be readjusted for any reason, the job is easily done.

GETTIN’ IT ALL TOGETHER!

This takes all of 10 minutes, and you won’t need any tools apart from the supplied wrench. A rear bumper must be attached to the chassis, and the decals must be applied to the body. When the body is complete, it must be bolted to the chassis with a single bolt. That’s it! Finished!

(Continued on page 51)

(Continued from page 49)

BATTERY BASICS

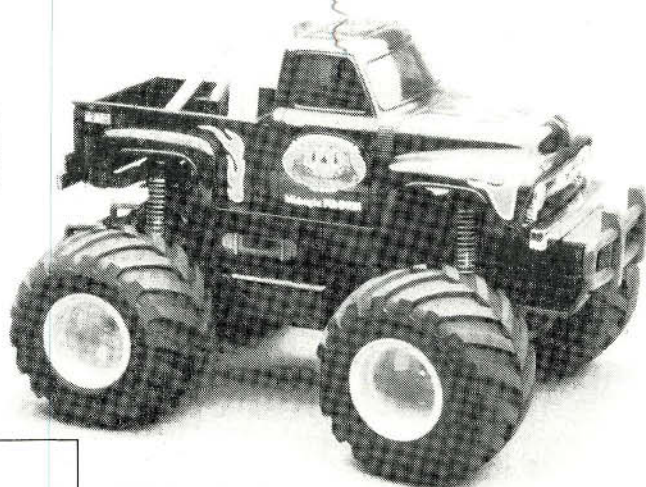
The Pumpkin QD is designed to run on eight, AA, alkaline or nickel-cadmium (Ni-Cd) rechargeable cells. Although the alkaline cells are readily available and initially cheaper, you can only expect about 45 minutes of running. Over time, the cost of using alkaline batteries will far exceed the initial cost of the Ni-Cds.

The Pumpkin QD offers two ways to charge the Ni-Cd batteries if you decide to use them.

● **Trickle-charging:** this is the least expensive method. In the side of the chassis, there's a built-in charging jack that allows you to trickle-charge

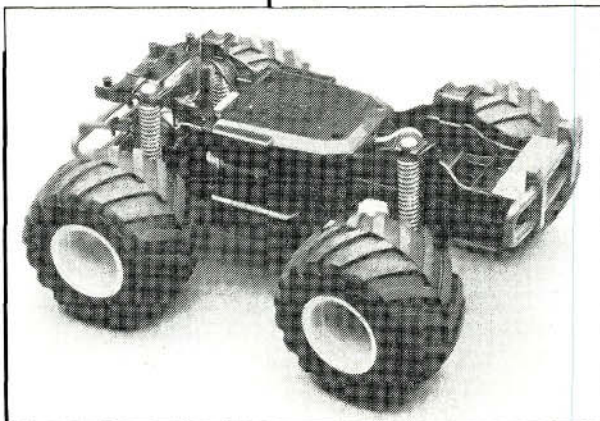
the batteries while they're still in the truck. This is a very safe, low-current charge that will charge dead batteries overnight.

● **Quick-charging:** MRC (the company that imports Tamiya products) offers a quick-charger that will put life back into your



Above: The Pumpkin QD comes with a mini pistol-grip radio. The body is molded in black and just needs the decals.

Left: Four friction shocks soak up the bumps. The tires on the QD are the same size as those on the 1/12-scale Pumpkin.



batteries in about 20 minutes, but to be charged, the batteries must be removed from the truck.

BEACH BUM RUN!

When I took the QD down to the beach for a quick test run, I felt as though I was riding my old tricycle with my knees sticking into my ears. But, because the QD uses eight cells (compared with the six cells that larger cars take), I was surprised to see how fast it went.

The electronic speed control was smooth, although

BIG BROTHER

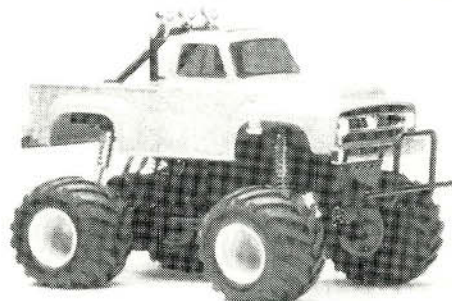
Tamiya's Midnight Pumpkin is the Pumpkin QD's big brother and the base for its design. We showed the 1/12-scale Midnight Pumpkin monster truck in the May '88 issue of *R/C Car Action*. Based on the older Mitsubishi Pajero chassis, it's designed to be used with 540-size motors and full-size radio gear. In the rear, a floating axle houses a gear differential that was the mainstay for the popular 1/10-scale Hornet off-road car.

For its front suspension, the Midnight Pumpkin has independent A-arms with fixed kingpins, so when the angle of the suspension arm changes, so does that of the kingpin. For front and rear suspension dampening, the big Pumpkin uses an oil-less shock that doesn't do much for handling.

The suspension is attached to a tub-type chassis that's arranged so that it concentrates the weight toward the rear. As a result, when accelerating, the Pumpkin pulls a wild wheelie (that's the reason for the wheelie bar that's included on the 1/12-scale monster). Covering the whole package is a similar, but larger,

'53 Ford pickup body.

Though the two trucks may look alike, there are many differences in the equipment used to power and steer them. The



simplicity of the Pumpkin QD makes it the better choice for a young, first-time enthusiast; but once a newcomer has graduated from the QD and wants to move to a higher class of vehicle, the 1/12-scale Pumpkin may be the way to go.

TAMIYA

PUMPKIN QD

Type Monster truck
Scale 1/14
Sug. Retail Price \$195

DIMENSIONS:

Overall Length 13.5 inches
Width 10 inches
Height 8.63 inches
Wheelbase 7.63 inches
Track (f/r) 7.25 inches

WEIGHT:

Gross (w/bat.) 3 pounds, 10 ounces

BODY:

Type '53 Ford pickup
Material Plastic

CHASSIS:

Type Sealed tub
Material Plastic

DRIVE TRAIN:

Primary Pinion/spur
Transmission Gear drive
Differential Bevel gear
Bushings Plastic

SUSPENSION:

Type (f/r) Solid axle
Dampening (f/r) Coil-over

WHEELS:

Type (f/r) One-piece plastic
Dimensions (DxW) (f/r) 2.38x2.56 inches

TIRES:

Front/Rear Rubber terra tread

ELECTRICS:

Motor RS-380
Battery 8 AA Ni-Cds*
Speed Controller Electronic

OPTIONS AS TESTED:

Eight AA Ni-Cd batteries; MRC RK950 Quick Charger

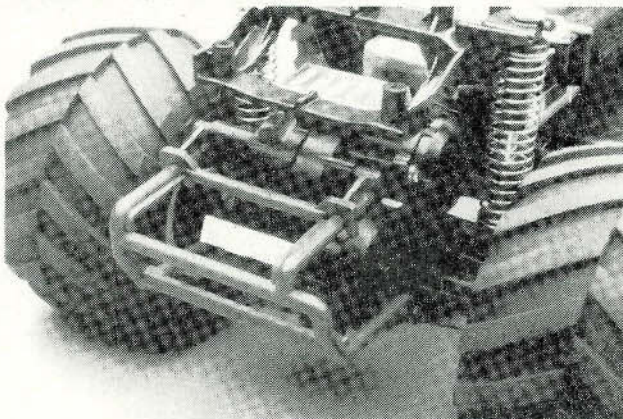
COMMENTS:

The QD is an excellent choice for young enthusiasts who aren't ready for larger, more complicated R/C kits. The Pumpkin QD is one of the best kits in this class. Its pistol-grip radio is fully proportional and it has an electronic speed controller.

* not included



Eight AA batteries power the QD.



A plastic guard protects the motor from being damaged.

Before getting used to the controls, Greg managed to tag every piece of furniture in the room, but after 15 minutes, he was challenging his dad to a race with his Hi-Rider Vette.

it was a little jumpy at the start; but remember that we're not talking about a high-dollar racing machine. I eventually loosened up—took my knees out of my ears!—and began to enjoy popping wheelies in the sand. The real test, however, would be administered by a ruthless member of its target audience.

I had a prime candidate for the job: my five-year-old nephew, Greg Verbanic. Greg had absolutely no experience with R/C cars, so he was obviously the man for the job of putting the QD through the wringer.

When I had put his eyeballs back into his head, I gave him a quick lesson on how to charge the batteries, what to turn on first, and so on. Was he really listening? Probably not!—he was waiting to get his little paws on the merchandise! Before he got used to the controls, Greg managed to tag almost every piece of furniture in the room, but after 15 minutes, he was challenging his dad to a race with his Hi-Rider Vette.

With all the high-tech hype we see in the racing segment of the hobby, attention has been diverted from the young ones who are about to start a hobby they'll enjoy for the rest of their lives. The QD is a shoo-in for youngsters who don't have the skills to pilot the big, complicated machines, but would like to get involved. So, before you buy that graphite chassis, listen to the little one tugging on your pant leg.

**Here's the address of the company featured in this article:
Tamiya/MRC, 200 Carter Dr., P.O. Box 267, Edison, NJ 08818.*

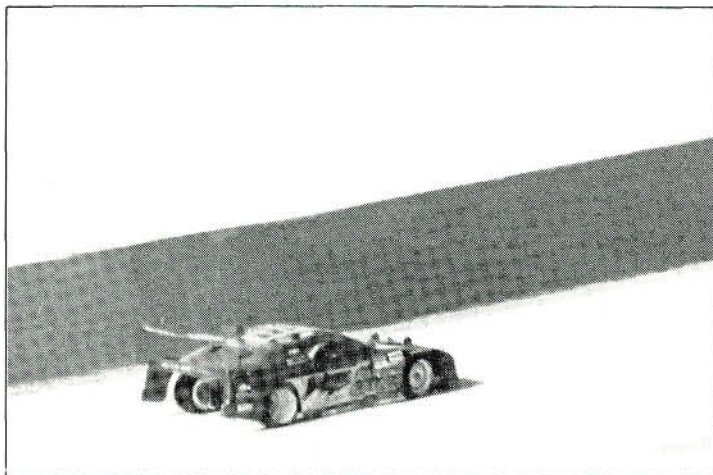
CHEETAH RACING

DIFF-CENTERING KIT

by ERIC GOLDSCHRAFE

SMALL PARTS; BIG DIFFERENCE!

WITH AN ON-ROAD RACING CAR, setting the ball differential is an important, but often unappreciated, adjustment. There are several brands of differential available with parts that look similar and fit a variety of cars; all operate, or can be made to operate, satisfactorily. Precision balls, hardened-steel washers, thrust bearings, high-quality gears and special axles can be combined to provide optimum performance and durability without costing a fortune. All this is useless, however, if the diff won't stay in adjustment!



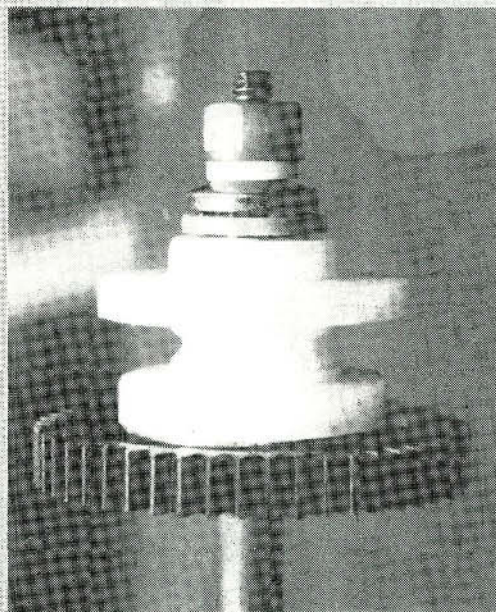
Many axles, including after-market graphite units, have an undercut (or insert) threaded onto the end, and in many cases, the supplied hardware can't hold the adjustment. In particular, the dished Belleville washer is a sloppy fit, not only on the shaft, but also against the adjacent washer. As a result, it "floats," trying to find its center (even while you're racing), and this can cause the diff to lose the sensitive adjustment you so carefully made.

Cheetah Racing* comes to the rescue with a Diff-Centering Kit (no. 2002) that will work with any 1/12- or 1/10-scale, Associated-type differential using the common 8-32 threaded axle end. The secret of this kit is a specially designed, nylon, stepped washer with a small lip that centers the supplied Belleville washer and allows accurate settings and smooth operation. These parts, plus a special nut, replace the stock parts without modification. I've used this setup in several cars with excellent results.

Naturally, for optimum results, you'll want to disassemble the entire diff and replace any worn parts. When you reassemble the unit, apply a little Cheetah's Diff Lube (no. 2003) to keep the operation supersmooth. Now you can get up and boogie!

**Here's the address of the company featured in this article:*

Cheetah Racing, 10823 Amestoy Ave., Granada Hills, CA 91344. ■



Using the Cheetah diff-centering kit, your car will have super-smooth operation. A small, plastic washer with a lip keeps the Belleville washer centered on the axle.

HEAVY HAULER

Funny Car Puller



by DAVE SPROUL

RAY OLM I OF West Terra Haute, IN, isn't a typical R/C modeler; he likes to do things in a big way—in 1/4-scale, that is! I recently visited Ray and saw his totally scratch-built 1/4-scale funny car puller in action.

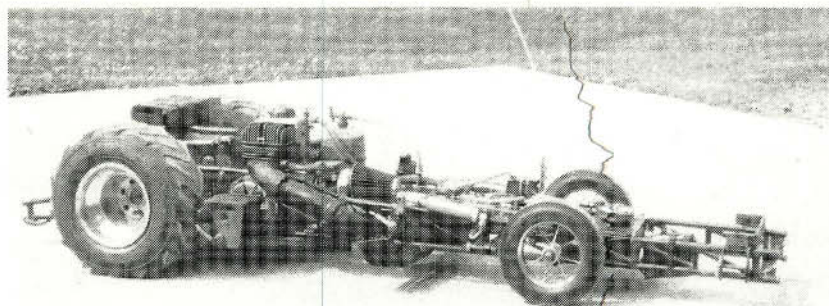
At first glance, this car didn't look very special, but when I lifted its one-of-a-kind handmade fiberglass Mustang body, I found an array of features that would delight any motor-head! A 100cc McCullough chainsaw engine gulps down huge amounts of nitromethane and pumps out

12 1/2hp! To handle all this power, Ray used a wet slider clutch from a go-cart. A drive chain is connected to the custom-built transmission, and this allows forward, neutral and reverse to be selected by radio control. The heavy-duty rear differential was lifted from a riding lawnmower.

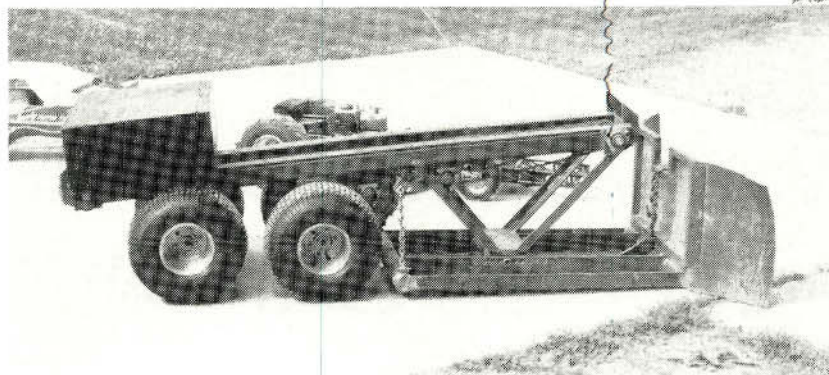
Ray's control system is pretty sophisticated. For steering, he has a custom-made rack-and-pinion setup that uses a hydraulic dampener and is controlled by an air cylinder. The pressure to the cylinder is controlled by a servo-actuated air



This massive puller features a scratch-built frame to support the heavy-duty hardware.



Ray Olmi's puller required building a 1/4-scale sled, which can easily handle more than 1,000 pounds!

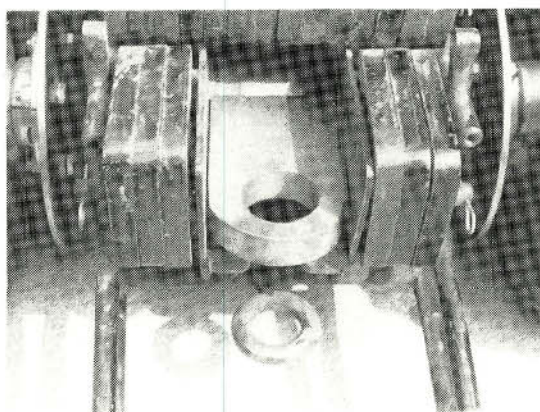
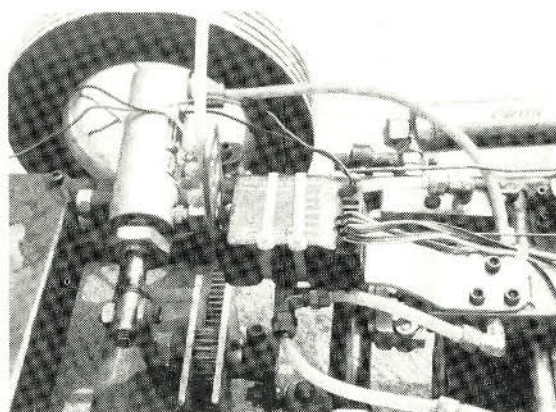


valve, and in the rear, there are individual left and right hydraulic disc brakes. The rotors, calipers and master cylinders were taken from racing go carts. The braking system is called "air-over-hydraulic," and the master cylinders are activated by air cylinders to which air pressure is sent *via* the servo-actuated valves. The home-brewed air-pressure system consists of a 1-pound can of Freon, a reserve pressure tank, pressure regulator and gauge, valves and cylinders. Ray gets about six runs before he has to change the Freon can.

Ray and his sons used steel tubing for the frame. Up front, the chassis rolls on solid rubber tires and, in the rear, 5x6x13 inch rototiller tires are fitted to modified aluminum go-cart wheels. The car weighs an incredible 140 pounds, and this

After another warm-up pass, Ray handed the transmitter to me! To say I was hesitant is an understatement! I've piloted my 35-pound, 2.3hp, 1/4-scale Pacesetter funny car down the drag strip, but 12hp and 180 pounds is another story! Ray insisted, so I gave it a try and promptly drove out of bounds at the 10-foot mark. Try again!

The second (and last!) pass was much better. Easing into the throttle and using the left and right brake to keep it straight, I pulled out of the gate. At about half track, I stood on the throttle only to



Far left: An air cylinder operates the rack-and-pinion steering setup, and a 6-channel radio (located far from the engine to avoid glitching) controls the Heavy Hauler.

Left: The business end of the puller includes heavy-duty pull bar and safety hook-up, dual disc brakes and wheelie bars.

doesn't include the extra 40 pounds of hang-on weight! An old Tower Hobbies System 500 6-channel radio, two standard-size servos and two, large, 1/4-scale servos provide the radio control.

What's it like to drive this beast? After hooking up to the custom-built 1/4-scale sled, which weighed about 1300 pounds, Ray's sons fired up the McCullough and proceeded to make a full-pull pass with the tires spinning the entire 75 feet! Tire speed was around 30 to 40mph, which translates into 120 to 160mph scale speed.

back it down promptly as the finish line came up rather suddenly! That was fun—almost as much fun as sitting behind the wheel of a full-scale puller!

While he's waiting for 1/4-scale pulling competition to begin, Ray plays with his car in the back yard and runs it in demonstrations at full-scale events. Meanwhile, he told me that he put in a different engine. This one's been massaged a bit. What's that, Ray?—30 to 40 horsepower?! You *must* be kidding! ■

by RICK HOULE

IT'S enough to make you dizzy! What is? The R/C monster truck phenomenon, that's what! As more and more manufacturers introduce their own versions of what a monster truck is supposed to be, increasing numbers of R/C truckers are getting involved with these over-size, rock-busting mutants.

Many of these behemoths are built for a specific purpose, e.g., Team Losi's new racing version—the JR-XT, or Tamiya's Clod Buster with dual motors and enough pulling power to bring down a house. The new Traxxas* Sledgehammer seems to incorporate the best of many different monster truck (MT) features.

MONSTER MUTANT!

The Sledgehammer reminds me of the Soviet HIND Helicopter. It seems as if the HIND's designers couldn't decide whether to build a heavily armed, aerial-assault gun ship, or a heavily armored troop carrier, so they opted for a compromise. The Sledgehammer isn't advertised as a racing MT, but the Traxxas designers have obviously borrowed many off-road racing features developed by other well-known manufacturers. On the other hand, the Sledgehammer is 100-percent mon-



ROCK'EM!

ster truck with all the obligatory MT features, from its high ground clearance and high-mounted truck body to its chevron-tread, spiked tires!

There are two versions of the 'Hammer: no. 1801 (unassembled) and no. 1806 (assembled, and includes a radio). I was lucky enough to get my hands on the assembled version, and it turned out to be a real treat.

The Sledgehammer 1806 is a fully assembled, ready-to-run MT, complete with a Traxxas 2-channel radio system and a pistol-grip transmitter with steering wheel. It's loaded with goodies like an electronic speed control with fully proportional forward and

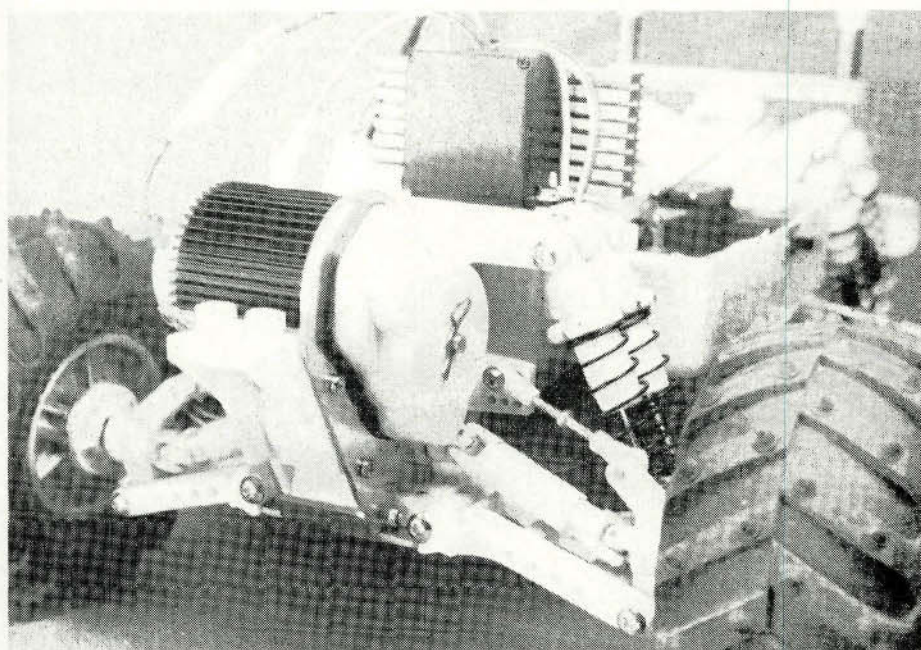
(Continued on page 63)

T R A X X A S

SLEDGEHAMMER







The rear end of the 'Hammer sports some real goodies! Dual shocks, turnbuckle upper control links, large universal shafts, motor heat sink, and a handy gear cover are just some of its features.

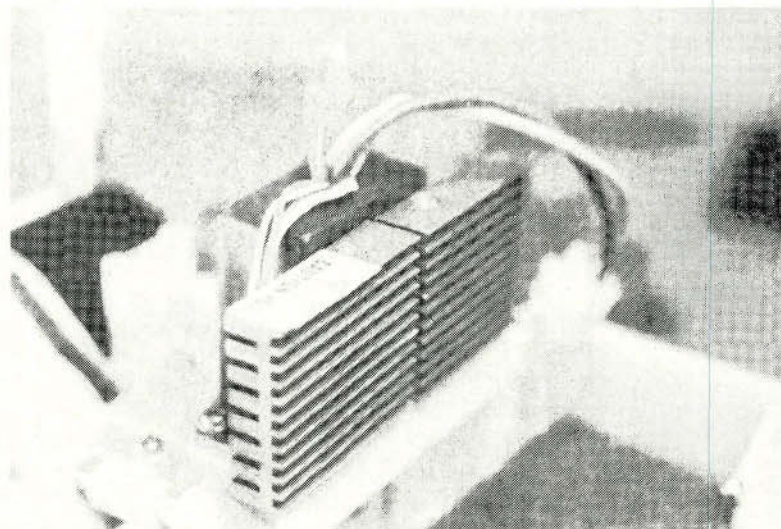
(Continued from page 60)

reverse (all the FETs are amply protected by oversize heat sinks). Other niceties include turnbuckle control links, a motor heat sink, chrome wheels, bumpers and roll bars, and eight (count 'em!) oil-filled, coil-over shocks.

An overzealous designer at Traxxas decided to mount the body on the chassis by means of four spring-mounted body posts that, though they may protect the body and posts in a crash, look slightly odd as they wobble when the truck moves over

rough ground.

The chassis and wheels are a combination of some familiar, well-proven designs and a few innovative ones. Some of the most recognizable features include the Tamiya Monster Beetle-type, chevron-spiked tires; Associated RC10-type front A-arms and steering blocks; plastic Associated look-alike shocks; Losi-like, slider-type, universal drive shafts; and Associated-type rear-axle carriers. The tub-type chassis is con-



The electronic speed control has huge heat sinks to keep things cool!

TRAXXAS

SLEDGEHAMMER RTR

Type Monster truck
Scale 1/10
Suggested retail \$320

DIMENSIONS:

Overall Length 17.5 inches
Width 13 inches
Height 10 inches
Wheelbase 10 inches
Front Track 10 inches
Rear Track 10.5 inches

WEIGHT:

Gross (w/bat.) 5 pounds, 12 ounces

BODY:

Type Chevy Sportside
Material Polycarbonate

CHASSIS:

Type Tub
Material ABS/nylon/T-6 aluminum

DRIVE TRAIN:

Primary Pinion/spur
Transmission Gear drive
Differential Planetary, metal gears
Bushings Oilite

SUSPENSION:

Front: Type Ind. control-link, A-arms
Dampening Four, oil-filled, coil-over shocks
Rear: Type Ind. control-link, H-arms
Dampening Four, oil-filled, coil-over shocks

WHEELS:

Type (f/r) Monster truck
"center-line" style
Dimensions (DxW) (f/r) 2.44x2 inches

TIRES:

Front/rear Rubber chevron with spikes

ELECTRICS:

Motor Mabuchi 540S
Battery 7.2V, 6-cell*
Speed Controller Electronic with reverse

OPTIONS AS TESTED:

None.

COMMENTS:

The Sledgehammer's great ground clearance enables it to eat up the roughest terrain, and it feels indestructible. This is one tough customer. For optimum speed, we suggest a hotter motor. The spring-mounted body is slightly too wobbly, but this is easily solved. With a few mods, the Sledgehammer could be transformed into a highly competitive production racing truck.

*Not included

SLEDGEHAMMER

structed of some of the most durable materials available: nylon, ABS plastic and T-6 aluminum components make this one of the toughest MT chassis on the market. Certain details show the expertise of the Traxxas designers. The gear cover has a rubber gasket to keep dirt out and is held on with a single body clip. T-6 aluminum skid plates drop the front suspension approximately 1 1/4 inch and the rear suspension 1 1/2 inch to give the main chassis an awesome 3 1/2 inches in ground clearance and protect vital suspension parts.

Nestled safely behind the front skid plate, a heavy-duty servo-



The unique servo angle has the servo saver parallel to the chassis, so reducing bump steer.

saver protects the steering servo. A fiberglass plate holds the battery pack down with two body clips, and the pack rides on a cushion of foam rubber to

eliminate clunks and rattles. The front bumper is attached to a stout chassis nose piece, and the whole affair seems to be looking for a cement curb.

The Sledgehammer's planetary-type differential has 48-pitch, metal gears and is described by Traxxas as "double-ugly-tough" (?). An interesting gear-reduction setup connects the ponies from the Mabuchi RS 540S motor to the gearbox.

The Traxxas XL-1 speed control is fully proportional in both forward and reverse, and it has LEDs for neutral and proportional adjustments. Current ratings are

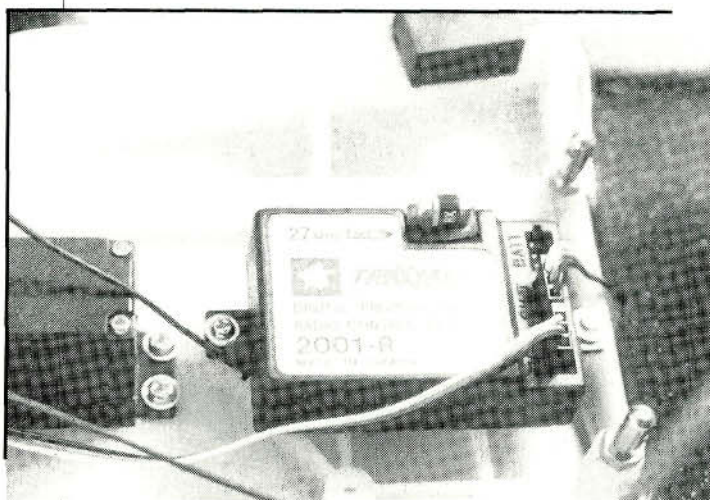
150 amps peak and 75 amps nominal, and it's capable of handling up to seven cells.

The nylon shocks come with extra sets of slotted piston heads (two, three and four slots), and each piston has a "flapper" valve. Time for a little numbers game: while looking over the extra piston heads, I noticed that the bag contained eight 3-slot pistons, four 2-slot pistons and four 4-slot pistons. I checked the instructions, which tell you to use the 3-slot pistons, but if I had all eight of them in the bag, then what was in the pre-assembled shocks?

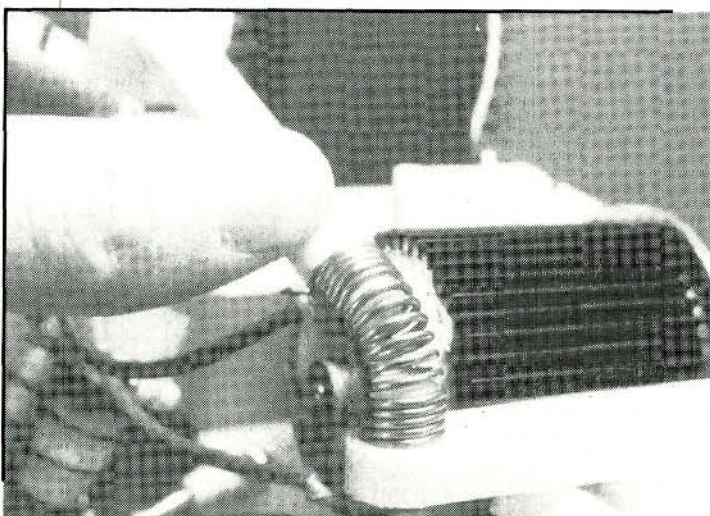
On investigating this puzzle, I discovered that the four rear shocks had the 4-slot pistons while all four fronts had the 2-slot pistons. The variety of piston heads allows you to dial-in your shocks' dampening action—of course! The instructions' only mention of oil viscosity said something about using 40WT oil, so I assume that 40WT is what the factory assemblers put into the shocks.

NO SWEAT!

The packaging for this kit is a printer's masterpiece. The huge 3.8-square-foot box is covered with full-color photos showing the Sledgehammer's best features.



The Sledgehammer comes with a 2-channel radio already installed.



The spring-loaded body mounts won't break, but the body sure bounces a lot.

This kit is a lazy trucker's dream come true. You just open the box and pull out a completely assembled MT with an unpainted body mounted on it, and a wheel-type, pistol-grip radio that has a nice, hefty feel to it. The electronics are already installed, so you only have to paint the body, slap in a 7.2V battery pack, and plug eight AA batteries into the radio. That's it! Suspension tuning and radio adjustments have been dealt with at the factory, so there's little fuss getting this brute on the road.

Even though my Sledgehammer came fully assembled, I read the instructions carefully so that I'd have at least a basic knowledge of the truck's internal makeup; if something goes wrong, I'll be better prepared to troubleshoot and solve the problem. The instruction manual contains plenty of photographs showing each construction step. Handy diagrams at the bottom of each page include a millimeter scale and drawings of the hardware used for the steps shown on that

page. There weren't any tune-up tips, but that was the only deficiency I could find in the instructions.

PAINTING MAKES PERFECT!

Painting was the only part of this project that required effort. The stylish Chevy

I used Pactra's* Blue Streak to match the color on the box, and I "personalized" my paint scheme by using five other colors in a simple stripe motif. I used regular automotive pin-striping tape (three different widths) to apply stripes to the sides and across the tailgate.

When I had sprayed the entire body with Blue Streak, I removed the tape and indiscriminately sprayed brief spurts of Pactra's Fluorescent Yellow, Metallic Burgundy, Rally Green and Fluorescent Orange.

I backed up the lighter colors with Sprint White and, for contrast, I hit some of the unpainted areas with Blue Streak. Next, I applied the chrome grill and the taillight decals, and I added the bumpers and a roll bar.

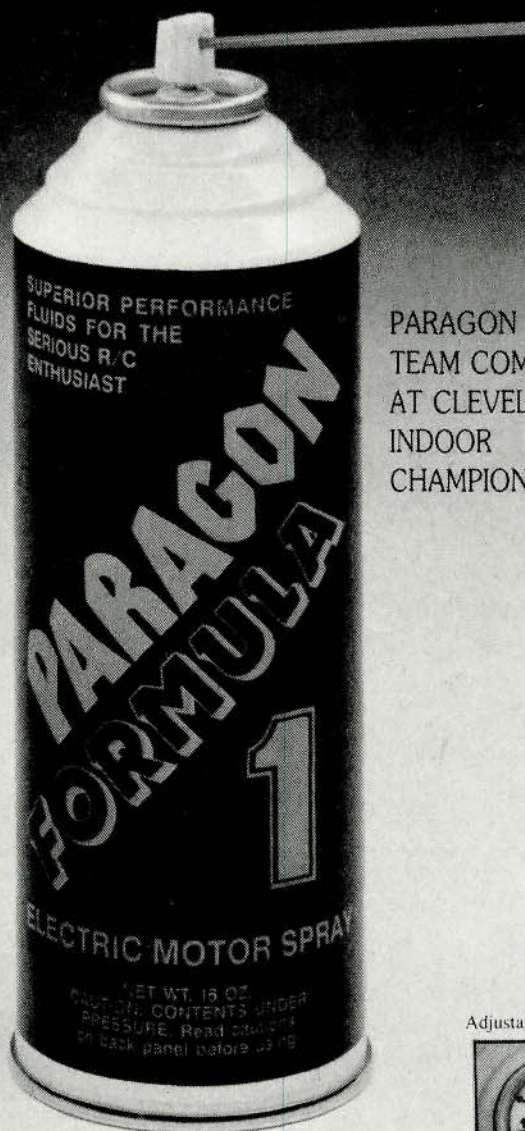
The body had been trimmed at the factory, and the wheel wells were already cut out. Tape over the wells before painting to avoid getting over-spray on the outside of the body.

READY TO BOOGIE

By the time the 7.2V pack of Ni-Cds had peaked on the charger, the body

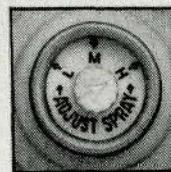
(Continued on page 164)

TURN UP THE BOOST!



PARAGON WINS
TEAM COMPETITION
AT CLEVELAND
INDOOR
CHAMPIONSHIPS!

Adjustable spray nozzle



FOR CATALOG SEND \$2.00 TO PARAGON, DEPT.
690 INDUSTRIAL CIRCLE SO., SHAKOPEE, MN 55379

Sportside body is clear polycarbonate, and the kit includes self-adhesive window masks that make painting a snap.

SCOPING OUT

by JOHN RIST

PDI's Turbo Zeta: lab wrecker!

THIS MONTH, "SCOPING OUT" looks at a *monster* of a speed controller—Product Design Inc.'s* Turbo Zeta. I put the Turbo Zeta through its paces to test its power handling and how easy it is to program.

In a future issue, Wally David will tell us how well it does in a heavy-duty pulling machine. Because it's rated for 32-cell battery packs, the Turbo Zeta should be able to handle modified motors that are wired in series to haul those heavily loaded sleds down the track.

When I unpacked the Turbo Zeta, I wasn't sure if I had been sent a doorstep with wires or the biggest, meanest speed controller I'd ever seen. As usual, I first read the instruction book from cover to cover, and I discovered that the Turbo Zeta:

- can handle a 6- to 32-cell battery pack
- can be run with or without reverse, but requires a separate 3- to 7-cell battery pack to be run with it

THE "SCOPING OUT" LAB

John Rist's lab consists of:

- an oscilloscope
- a digital voltmeter
- a resistor load bank
- a 6V 30-amp electricity supply.

The oscilloscope is used to monitor the controller's output and to guarantee that it's fully on.

The digital voltmeter takes all the voltage-drop readings and verifies the reading on the current meter.

The resistor load bank consists of 40, 12-ohm, 5-watt power resistors, which can be switched on and off one at a time to vary the load between .6 amps and 20 amps.

In series with the resistors is a 25-amp Simpson current meter and a 1-percent .01-ohm resistor. By measuring the voltage drop across this resistor, the current-meter's reading can be double-checked. Of course, the lab power supply provides the test current.



The PDI Turbo Zeta is a real lab wrecker! The hand-held programmer (right) is used to set the speed-controller's parameters.

- is watertight, so it's operable under wet or dry conditions
- has built-in thermal shutdown
- is programmable for throttle-neutral and full-on; start and end of trigger travel; nine throttle and 32 acceleration curves; and reverse enable/disable.

First, I looked inside this beast. As you can tell from the picture, the Turbo Zeta is built of solid aluminum block. I removed the two screws that hold on the lid, but it wouldn't come off. I carefully pried off the lid with a screwdriver and realized that it had been sealed with silicone adhesive to make it watertight. I don't recommend that you remove the lids from these speed controllers, because you'll destroy the watertight seals. (Besides, it's impossible to replace even a broken wire, because they all pass through watertight, pressed-into-place rubber plugs.)

Three things impressed me when I looked inside the Turbo Zeta:

- The aluminum block from which the case was machined is massive; the walls of the case are 1/8 inch thick.
- Eleven of its twelve Mosfets are bonded to the case with conductive epoxy, and

this allows the Turbo Zeta to handle massive amounts of power without getting hot.

- The case was full; Product Design has packed many functions into this brute.

The Turbo Zeta is so unusual that I wasn't sure which tests I should perform, but after some thought, I decided to run the tests I usually run. An additional test—some kind of killer with 32 cells attached—seemed appropriate for this monster.

I installed the Turbo Zeta in my lab setup. The throttle signal is provided by a servo tester called a Pit Stop Radio, which eliminates radio-frequency interference patterns on my oscilloscope screen and is more precise than a trigger for obtaining the desired throttle settings. (There's an article on how to build your own in the March 1990 issue of *Car Action*.)

The Turbo Zeta can be programmed and comes with a separate, hand-held, programming module. The use of a microcomputer chip eliminates the need for neutral and full-speed adjustment screws, and this helps when you're building a watertight speed controller.

Just once, you program the controller

PRODUCT DESIGN INC.

TURBO ZETA

DIMENSIONS:

Length 2.25 inches
Width 1.75 inches
Height 1.10 inches
Weight 5.5 ounces

TUNING:

Access to Controls Hand-held programmer
Ease of Adjustment Good

PRICE:

Suggested Retail \$299.95
Warranty 90 days

ELECTRICS:

(Manufacturer's Specs)

Max. Voltage 38.4 volts
Min. Voltage 7.2 volts
Max. Current Forward 995 amps
Continuous Current Forward 210 amps
Fuse Automatic
Max. Resistance004 ohm

TEST PARAMETERS:

Voltage 6 volts
Current 12 amps
Voltage Drop08 volt
Max. Resistance006 ohm
BEC Output 5.05 volts

COMMENTS:

The Turbo Zeta is in a class of its own. If you need a speed controller that can deliver enormous amounts of power for sled-pulling, give it some serious thought. Although large and heavy, it's the coolest-running speed controller I've ever tested. The supplied battery connector will melt under hard use and should be replaced before you do any serious pulling. Other than that, the Turbo Zeta appears to be bulletproof.

for neutral, start of forward, full speed and end of throttle. Simply set the throttle on your transmitter to the points mentioned, set the code switches on the hand-held programmer to the proper combination, and press the programming button. The LED on the speed controller flashes to let you know it has accepted the information. Don't let programming this speed controller scare you, because it's easier than it sounds.

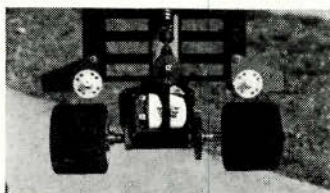
The other programmable functions, e.g., the throttle-linearity curves and acceleration curves, must be matched to your particular truck and track condition. Once you have a winning combination dialed-in, a lithium battery in the Turbo Zeta makes the settings permanent. A few

(Continued on page 165)



Manufacturer of the
Finest Innovative and
Functional R.C.
Equipment.

NEW FOR
1990



10L NARROW REAR END

This Rear End Kit for the Associated 10L Car centers the motor on the chassis, narrow rear end track to reduce front end push. Protects rear axle from impacts. Comes with "Threaded Center Post" for precision dampening adjustments that won't "slip". Upper and lower braces are made of graphite. T-Bar and T-Bar spacer are G-10. Nothing more to buy, uses all standard 10L parts in kit.

Part # PS01.....\$49.99

Spare Threaded Center Posts available separately.

Part # PS02.....\$ 6.50



RC-10 GRAPHITE LOWERING KIT

This is the new lowering kit for the new Associated RC-10 Graphite Kit with long suspension arms. Made of precision molded nylon and graphite materials, it lowers the car's center of gravity while laying the shocks down to allow the use of wedge bodies without the need to cut holes for shock clearance. Front outer shock mounts are of composite graphite for strength and durability. Hardware included.

Part # 2025.....\$24.99

Spare Outer Front Shock Mounts available separately

Part # 2027.....\$12.95 pair

Inquires Welcome

For Latest Catalog Send: \$1.50 plus SASE, size 4" x 9"
CHEETAH RACING, 10823 Amestoy Ave., Granada Hills, CA 91344 (818) 366-2683

More For Your Money!



**Get Low Prices Whether
You Ask For Them Or Not!!**

FREE Shipping on Video

Excitement of Remote Control Car
and Monster Truck Racing Vol. I

• How To Build Your Own 6x6x6 Clod Buster
• Water Racing • Can Crushing • Much much more!!!

1-1/2 Hours Long \$21⁹⁵ VHS

BETA's add 3.00
Chassis Adapter Kit for 6x6x6 15.95

KITS

Clod Buster.....	217.95	310.95
Porsche 959.....	217.95	309.95
Boomerang.....	141.95	232.95
Thunder Dragon.....	121.95	212.95
Hot Shot II.....	166.95	258.95
Terra Scorcher.....	190.95	283.95
Celica 4WD.....	216.95	309.95
Thunder Shot.....	131.95	222.95

All Combo's Include:

Futaba 2NCS/148/AM.....	52.95
Leisure 104 DC Charger.....	23.95
7.2 Avenger Battery.....	17.95

★ Other Combo Options and Kits Available!!
Send for Price Sheet!

MN Residents add..... 6% tax
Shipping on all Kit and Combo's add 4.75
Money Orders Same Day Shipping
Checks allow 3 weeks

**ACTION VIDEO'S, INC.
OF ST. PAUL**

P.O. Box 17045, St. Paul, MN 55117

Custom Monster Truck Decals!

Giant 10" x 12" mylar sheet has over 20 different big monster names and truckin' slogans! Instructions for custom painting logo graphics also included! \$8.50/sheet*

(*Add \$1.00 shipping and handling for each item ordered. IL residents add 6.75% tax. Make check or money order to Mark Allen)

MarkAllenR/C

400 WEST ROOSEVELT SUITE 2NW
DEPT. CA WHEATON, IL 60187



©1989
Mark
Allen R/C

RC10 FUTURE SHOCK

by JERRY CRAFT

SHOCKING IM

rear wheels on the ground so that maximum power is transferred to the track. Sounds almost impossible, but my shocks come very close.

To build these dream shocks for your RC10, you'll need:

- standard Associated* rear shocks
- two Associated 1.02 shock shafts (no. 6459)
- one set of Paragon* Jump Jets (no. JJ625)
- one set of CRP* shock pressure caps (no. 9113)
- two 3/8-inch spacers made from CRP antenna caps (no. 9115, see text).

By following the instructions in your RC10 kit, you can produce a shock in which the piston travels only in the top half of the shock body. I use a shorter shock

shaft; this allows the piston to travel up and down in the center section and makes room for the Jump Jets and pressure caps. This procedure doesn't modify the bottom seal on the shocks, so if yours leak, rebuild them.

The Paragon Jump Jets increase shock responsiveness by using a "variflow principle." A tapered needle passes through a hole in the shock piston, and as the shock compresses, the needle gradually restricts the flow. This makes the shock stiffer at the top and reduces the car's chance of bottoming out. When the shock is extended, flow through the piston is increased, and this reduces dampening and makes the suspension more responsive over small bumps.

If you've ever built shocks, you know how much fun it is trying to get all the air out. The CRP pressure caps eliminate this problem and provide an easy way to vary the compression and rebound dampening.

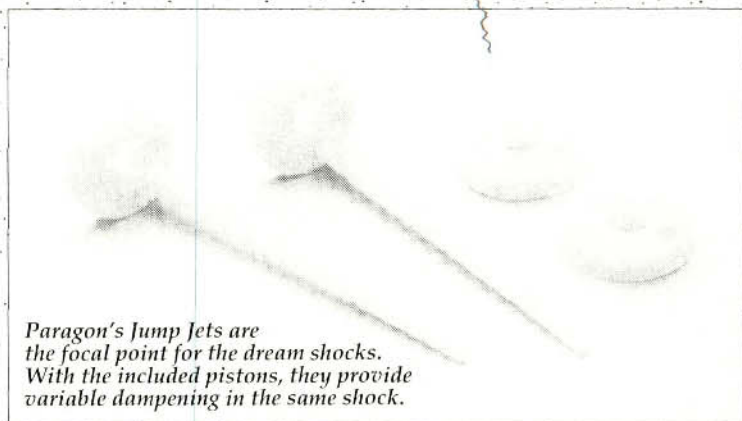
A pressurized shock tends to push the shaft out, and this increases compression dampening and reduces re-



M

ANY R/C OFF-ROAD RACERS dream of building a set of shocks that has enough compression dampening so the car won't bottom out and enough rebound dampening so it won't do back flips over jumps. The perfect shocks should be easy to maintain and soft enough to keep the

O V E M E N T S !



Paragon's Jump Jets are the focal point for the dream shocks. With the included pistons, they provide variable dampening in the same shock.

bound dampening. A vacuum shock sucks the shaft in, and this reduces compression dampening and increases rebound dampening. An equalized shock provides the same amount of both types of dampening. You can choose one of these positions when you're installing the shock cap.

Let's begin. Remove the rear shocks from the car and disassemble them. Clean all parts and rebuild the bottom

the bottom of the needle.

Fill the shock with an oil that's 10W less than what you normally use. If your track has mild jumps, start with 10W; if it has many large jumps, use 20W. Slowly move the piston up and down to remove trapped air and then refill the shock. For a pressurized shock, pull the shaft all the way down. For a vacuum shock, push it almost to the top. Position the piston in between for an equalized shock. Next, install the needle; a little oil should spill over. Place the pressure cap on top. (A little more oil will spill over, but there's no air inside.) If the pressure cap won't seat properly, the needle is too long, so cut a little more off and restart the filling process. Install the shock cap firmly, but don't tighten it too much because you could damage the pressure cap.

You can clean your hands and the outside of the shock now. Move the shaft up and down. Ah, no leaks—what a dream! Add the collars, springs and ends. Install the shocks using the second hole from the outside of the A-arm and the top outside hole of the shock tower. The chassis should just bottom out when fully compressed. When the shocks are fully extended, the dog bones shouldn't rub on the A-arms.

Jumps Jets and pressure caps can also be used in the front shocks, although the Jump Jets will need to be shortened. You may also want to create a new taper by trimming the needle with a hobby knife. These tricks have really helped my off-road racing, and I'm sure they'll make building your shocks much more enjoyable.

**Here are the addresses of the companies mentioned in this article:*

Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.

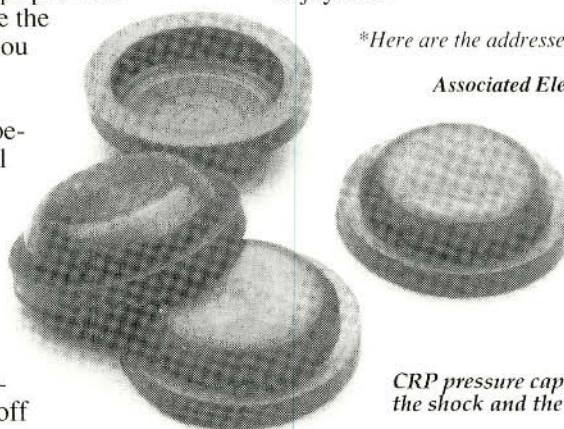
Paragon Racing Products, 690 Industrial Circle S, Shakopee, MN 55379.

CRP (Custom Racing Products), 3250 El Camino Real B-3, Atascadero, CA 93422. ■

CRP antenna caps are cut up to make thin shock spacers. Most fuel tubing is too thick and will cause clearance problems.

seals, if necessary. Take the Jump Jet pistons and needle off the plastic tree and remove all burrs with a hobby knife. Install the Paragon pistons on the new 1.02 shafts, and make sure you use the pistons marked with an "A" for your Associated shocks. The "C" clips provided with the Jump Jets must be used because the needle will rub on standard "E" clips. You may need to squeeze them so they clip tightly.

Slide a 3/8-inch spacer onto the shaft beneath the piston. This limits shock travel and prevents the A-arms from lowering too far and causing the dog bones to rub or snap. The spacer must be thin enough so the Jump Jet needle won't rub on it. Most fuel line is too thick, so I make my spacers from the little rubber caps I use on top of my antenna. Install the shaft and piston assembly into the shock body and cut 1/8 inch off

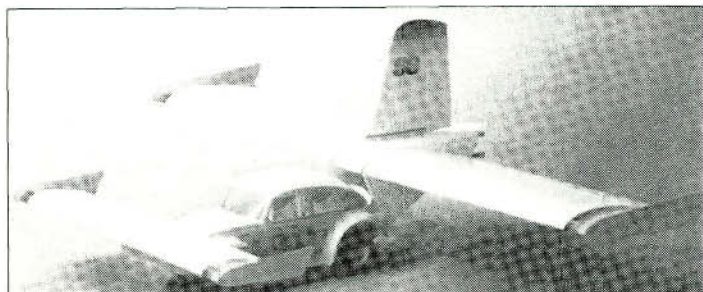


CRP pressure caps keep the oil in the shock and the air out.

INSIDE SCOOP

by RICH HEMSTREET

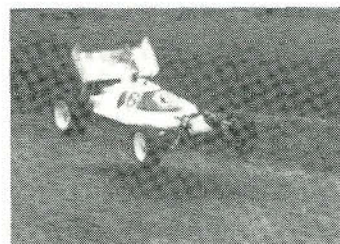
The R/C CAR industry is rapidly advancing, with new products being offered at a head-spinning rate. So, I'll make manufacturers nervous, but feed you R/C squirrels who are hungry for info, by bringing you a special report on security leaks and "late-in" items. Here goes!



BUG SEASON RETURNS

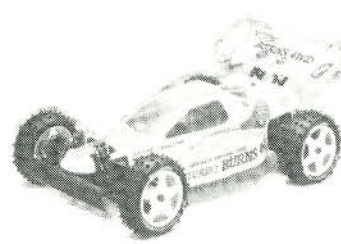
Every spring, the bugs come out of the woodwork and into the air—but this one resembles an old Volkswagen! The Flying Beetle is actually an airplane with a 1/8-scale

Volkswagen body for a fuselage. I wonder how long it will be before somebody comes up with a class for these critters to race in.



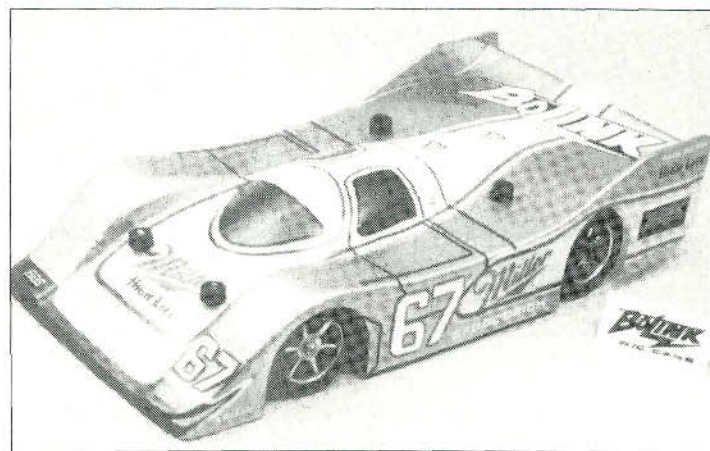
SPEEDWORKS SPORTSMAN CUP, NO. 2

This year's second Trinity/Speedworks Sportsman Cup Series race will be held in Detroit on the Fourth of July weekend. Last year, Speedworks held an on-road Sportsman Cup race in Detroit, but this year's event will be off-road, once again handled by Team SEMROCC.



NITRO BURNS'ING IN ATLANTA

Kyosho starts its major emphasis on 1/8-scale, gas, off-road and on-road racing in Atlanta on March 23 to 25, 1990. A field of top drivers will be on hand, all driving new Kyosho Turbo Burns. Saturday will be devoted to off-road racing, and on Sunday, the Burns will be outfitted with stock-car bodies and slicks to go oval-track racing on pavement.



POLYCARB PORSCHES

Bolink is introducing both 1/10- and 1/12-scale Porsche 962 GTP bodies. The 1/12-scale version has re-

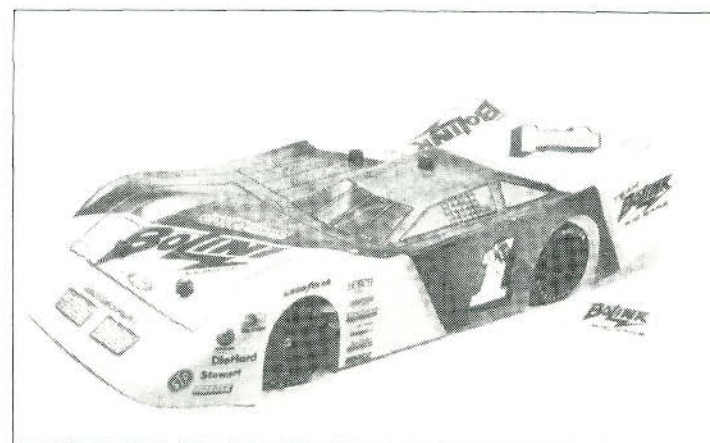
portedly been "massaged," so it should handle like the infamous TOJ.

PERFORMANCE PULLING PARTS

In the near future, Kyosho's new line of Max Trax truck parts will be expanded to include hitches and tires for pulling.

WATCH OUT!

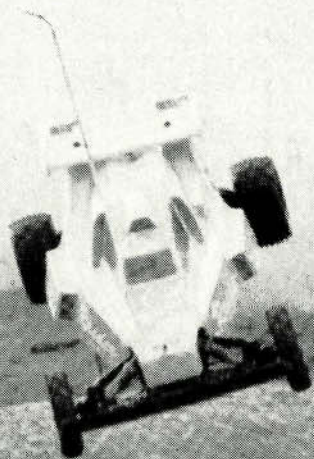
Rumor has it that there's a full-scale replica of a 1/10-scale R/C monster truck in the works. If true, the truck is expected to compete on the monster-truck circuit as seen on ESPN. We'll let you know as soon as we confirm the rumor.



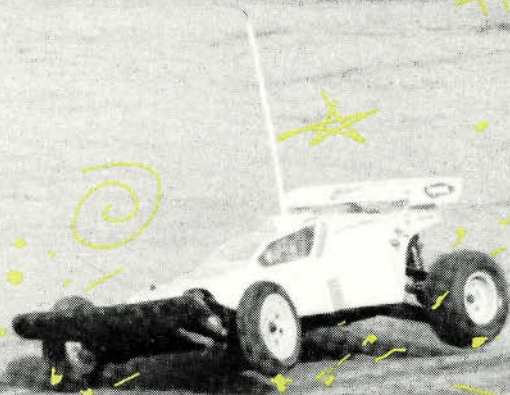
SLIDIN' SIDEWAYS

Another dirt-oval wedge body is on the way: Bolink's recent Corvette Devastator was so well received

they decided to do it again! The new body will be called the "Cobra Wedge."



RADICAL
and
READY
TO ROCK



TRACK REPORT



PHOTOS BY WALTER SIDAS

WATCHING THE editors of *Car Action* stroll by your office day after day with armfuls of R/C cars and products tends to make you more than just a little interested in the hobby. After a year of begging for an R/C car, I was finally rewarded by a relative newcomer to Air Age, Wally David. He gave me my first car: his 7-11 Panda Stocker (see the September '89 *Car Action*), which immediately fueled my desire for a brand-new R/C car.

The next day, I promptly complained, "Wally, the Stocker is already built. It's nice, but can't you get me a new one? I'll even review it!"

"You're not ready for a review," the editors chuckled. "You don't even know what a diff is!"

"I know, but what about the Kyosho* Raider ARR? It's for beginners," I asked.

"Hmmm," was all they said. A few days later, much to my surprise, an apprehensive Rich Hemstreet presented me with a box and a challenge: review the Raider!

"Thank you, Saint Hemstreet," I exclaimed, and here are the results.

After accepting the challenge, I did a little homework: I read *Basics of R/C Cars** and *Advanced Radio Control Cars** to brush-up on the lingo. I took the Raider to my garage workshop and pirated a small collection of tools from my father's tool chest. The instructions recommend that you have a Phillips-head screwdriver, pliers, scissors,

KYOSHO RAIDER ARR

b y E D S C H E N K

KYOSHO RAIDER ARR

Type Off-road
Scale 1/10
Sug. Retail Price \$149.95

DIMENSIONS:

Overall Length 12 inches
Width 9.75 inches
Height 5.5 inches
Wheelbase 10.125 inches
Track (f/r) 8.25 inches

WEIGHT:

Gross (w/bat.) 3 pounds, 2 ounces

BODY:

Type Off-road buggy
Material Polycarbonate

CHASSIS:

Type Tub
Material Plastic

DRIVE TRAIN:

Primary Pinion/spur
Transmission Gear drive
Differential Planetary gear diff
Bushings Plastic

SUSPENSION:

Type (f/r) Lower A-arm,
upper control link
Dampening (f/r) Coil-over shocks

WHEELS:

Front: Type One-piece plastic
Dimensions (DxW) 2x.75
inches
Rear: Type One-piece plastic
Dimensions (DxW) 1.75x1.5
inches

TIRES:

Front Rubber pattern
Rear Rubber knobby

ELECTRICS:

Motor LeMans 05 Stock
Battery 7.2V, 1200mAh*
Speed Controller Mechanical w/
3-speed forward
& reverse

OPTIONS AS TESTED:

Pulsar EXP 2001 radio system

COMMENTS:

An excellent car for beginners who want to break into the hobby. With the Raider ARR, you can start out simply and quickly, and advance at your own pace. Many upgraded parts and faster motors can be added to make it a production-class threat!

* not included

an X-Acto* knife, paint, masking tape and a paint-brush. I used all these and even experimented with a soldering iron, but this tool wasn't absolutely necessary.

WHAT YOU GET

The Raider kit was true to its ARR title—it was almost ready to run. The box contained a straightforward instruction manual, several bags of parts with which to install the radio servos, an unpainted Lexan body, decals, a completely assembled chassis and my first R/C tool: a nut driver! After reading the instructions thoroughly and becoming familiar with the parts, I opened the bags, separated the parts into plastic cups, and I was ready to begin.

WHAT YOU DO

I'm told that most R/C cars don't come equipped with a radio, so radio installation was a mandatory step in pre-

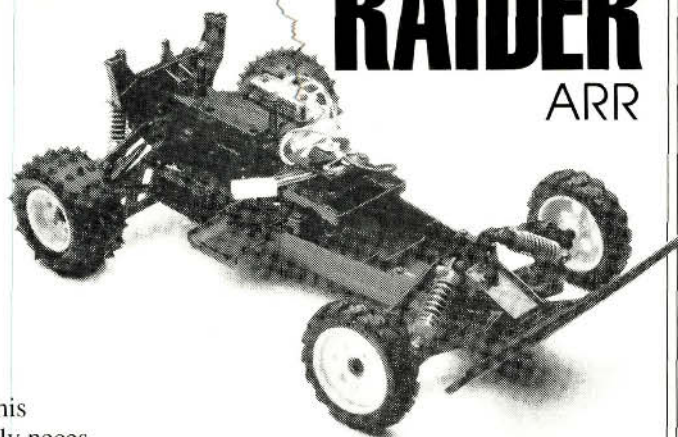
paring this car. With the Raider, it was a fairly painless first experience. The instructions clearly outline the installation of the following:

- the servo saver (a device that protects your radio steering servo from damage)
- the radio servos
- the speed controller and speed-control arm
- the radio receiver, on/off switch and antenna.

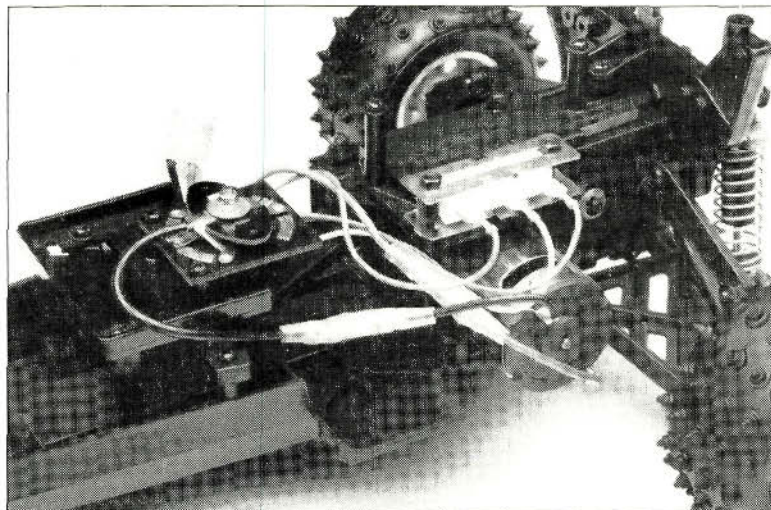
I chose a Kyosho Pulsar 2001 EXP radio; after it had been installed, I converted the battery connection from a Kyosho battery terminal to a male terminal that would accept Tamiya-style connectors. To ensure good connections, I soldered the wires together. I should have se-

(Continued on page 174)

RAIDER ARR



Above: The Raider ARR is the same as the standard Raider. There's only one major difference: it's almost ready to run!

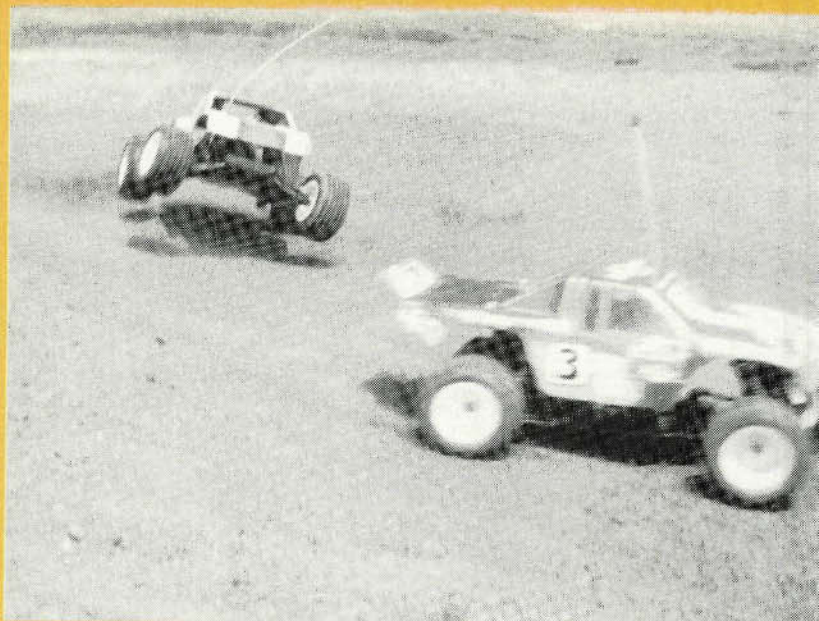


The mechanical speed control was one of the few things that had to be installed to get the Raider going.

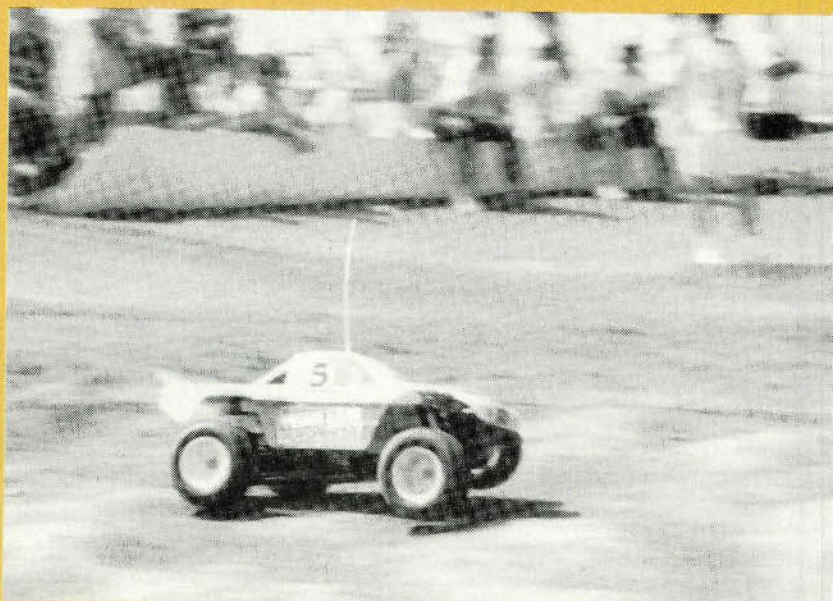
by RICK HOULE

MONSTER TRUCK RACING

PART 1



Left: Modern monster-truck racing features off-road cars that have been converted. These conversions are leaving the older monster-truck kits in the dust!





Clockwise from top: Tamiya's Monster Beetle was competitive in the early Monster Truck Class. • Team Losi's JR-X2 has become a very popular choice for racing monster-truck conversions. • This concours entry is an example of the full-scale desert racing trucks that R/C monster truck racers are starting to duplicate. • The first organized monster-truck race was for Marui Big Bears.



NEW BREED OF COMPETITION

IT ALL BEGAN in 1974, when Bob Chandler of St. Louis, MO, installed a pair of heavy-duty, military-truck axles with oversize farm-machinery tires on the family Ford pickup; the rest, as they say, is history! Bigfoot, the world's first bona fide mon-

ster truck (MT), began as an exhibition oddity and has been thrilling fans ever since. Mr. Chandler couldn't possibly have foreseen what a monster his creation would eventually produce in the world of R/C!

IN THE BEGINNING...

While the early full-size MTs were evolving into the fire-breathing behemoths we know today, the R/C car industry was also in its developmental stages. In the mid '70s, R/C cars were,

(Continued on page 79)

MONSTER TRUCK RACING

for the most part, 1/8-scale, on-roaders with radio gear borrowed from R/C airplanes; they were totally unsuitable for the rigors of MT activities. The limited suspensions of these early cars (if they had any at all!) and the frailty of the radio components made MT racing unthinkable at the time.

In the late '70s, Tamiya began to produce off-road cars that had fully independent suspensions with lots of travel. With tougher radio components specifically designed for R/C cars, it was only a matter of time before MTs appeared on the scene.

Bear, which was introduced in the mid '80s, was the predecessor of the MTs as we recognize them—over-size wheels, humongous tires with chevron-tread pattern, high-mounted truck body, etc.

Others, however, claim that the Tamiya Bruiser and the Tamiya Toyota Hi-Lux qualify as MTs because of their large tires, beefy chassis and suspensions, and high-rise, pickup-truck bodies. One thing is certain, however: the '80s were the most significant years for MT development.

R/C MTs started pretty much as their full-size

business. The appeal of these mud-whompin', car-crushin' vehicles quickly grew to international levels. The brave (or foolhardy?) drivers of the full-size trucks were obviously having a ball, and R/C made it possible for almost anyone to get involved.

Although discontinued by its importer, MRC, the Bruiser remains the most accurate, scale replica of a heavy-duty, off-road truck: it has an intricate drive train, a scale-like suspension with leaf springs and coil-over shocks, a three-speed transmission and a super-detailed Toyota

core enthusiasts, and it wasn't until the inexpensive, rugged Marui Big Bear arrived that R/C monster trucking really took off. Though technically a 1/12-scale truck, the Big Bear had all the qualities of a true MT, and for its low price, it was a ton (full-scale) of fun!

BIG BEARS HIT THE TRACK

In 1986, the Ranch Pit Shop in Pomona, CA, established a class for the Big Bear to race off-road and oval. To my knowledge, this was the first organized competition for MTs in this country. The idea was simple: spend little, compete against other drivers with the same vehicles, and have loads of fun! This was extremely attractive to both entry-level and experienced racers.

At the time, I found myself becoming more and more serious about off-road racing with my newly acquired RC10. Racing the Big Bear offered a relaxing respite from the increasingly competitive world of 1/10-scale racing.

It wasn't long, however, before the Tamiya Blackfoot came on the scene and crushed the relatively tranquil world of Big Bear racing. Based on the tried-and-true Frog chassis, the Blackfoot was rugged and versatile, and its looks suggested that its design was inspired by the Bigfoot. Like its full-scale counterpart, the Blackfoot sported

(Continued on page 204)



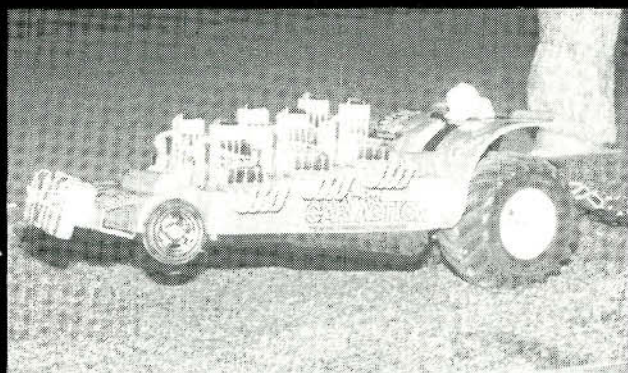
WHICH CAME FIRST?

Determining which was the first, true R/C MT is like trying to decide which came first—the chicken or the egg. The Marui Big

counterparts had—strictly for fun! The original Bigfoot served as an attention-grabber for off-road motor-sport events and was used to advertise Bob Chandler's small, off-road equipment

pickup body. Unfortunately, this truck is very expensive, complicated to build and weighs almost a ton (in 1/10-scale, of course!). Sales of this rig have been limited to hard-

B A S I C S O F PULLING



TRUCK AND TRACTOR pulling is one of the fastest-growing facets of the R/C industry and, to keep up with the demand, new equipment is introduced every month. The reasons for this fast growth? Very little space is required for a pulling track and, although driving skill is important, cat-like reflexes aren't required as much as they are in other forms of R/C racing. Most important: there's a class for almost every R/C vehicle, including scratch-built or single-purpose pullers.

Before you build a puller or convert a vehicle for pulling, obtain a copy of the pulling rules from your local track. If you want to start your own pulling club, the National R/C Truck Pulling Association and the North American Radio Control Truck Pull Association, as well as regional groups, can provide you with rule books and guidelines.

The main areas covered

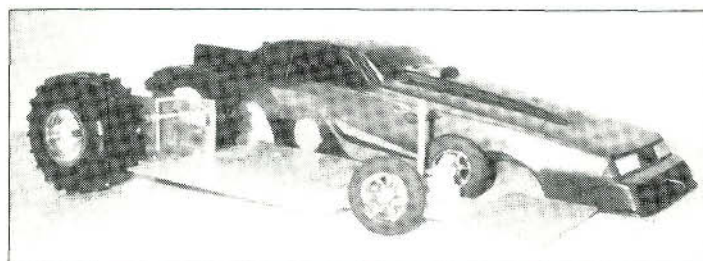
in the rules also have the most influence on pulling performance. They include: vehicle weight; length (both overall and wheelbase); hitch height; weight placement; tires; battery limitations; motors and transmissions.

We're all looking for the "perfect" pull that occurs when the vehicle accelerates quickly from the starting line (with little or no wheel spin) and moves down the track at a fast walking pace while under load. On 2WD vehicles, the front wheels should lift slightly, 2 or 3 feet before the finish line, and transfer the vehicle's weight to the drive tires. Four-wheel drive works exactly the same, but you'll need a lower hitch and more weight on the front of the vehicle so the front tires pull for the full distance.

The following building tips will help you get started with your own puller. Although certainly not the final word, these are basic ideas that work.

TIPS FROM A PRO

by LARRY BENNETT

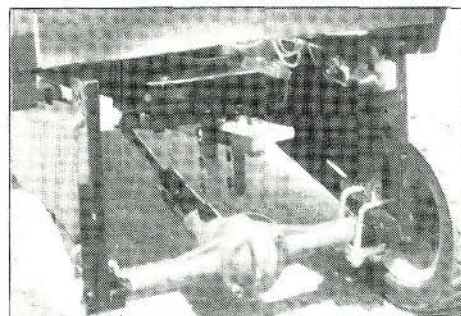


Weight Watching

Regardless of its class, make your puller as light as possible, while retaining its strength and reliability. Add ballast to bring it up to the

maximum weight allowed in your class (use several small weights, rather than one or two heavy weights, so you can move them around for balance.

Stretch it out

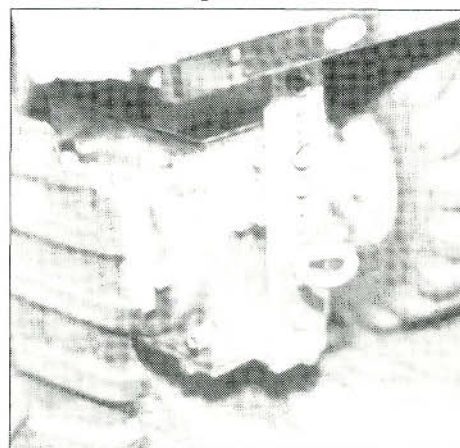


If it's allowed in your class, lengthen the wheelbase as much as possible by moving the rear axle backward. At the same time, mount it solidly onto the chassis and eliminate the rear shocks and springs. Check the rear-tire clearance, as

the rear of the chassis might have to be raised for body clearance. On trucks with independent rear suspension, the half shafts should be as straight as possible to minimize joint breakage.

Hitch 'em Up

Hitch height determines how effectively you use the length and weight of the vehicle to push the rear tires down on the track. To help limit the total weight being pulled, the 1990 R/C rules will probably impose lower hitch heights. If hitch heights are limited to 3 or 4 inches, the hitches

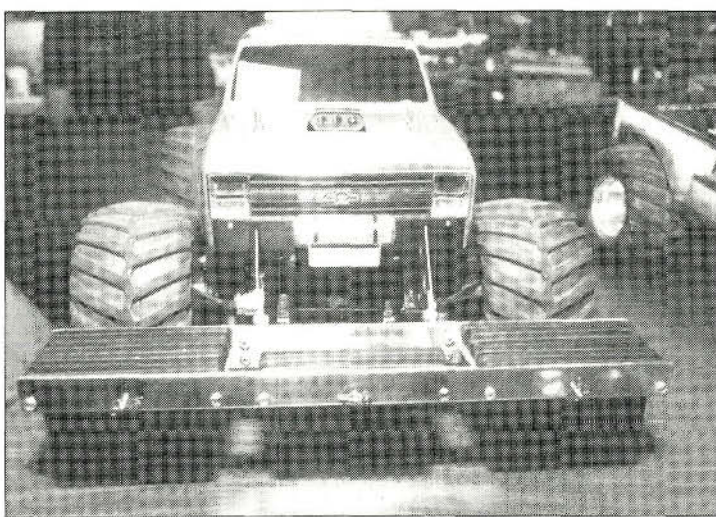


for most classes will have to be set to the maximum, while the movable weight will be used to balance the vehicle. Stock-class pullers (especially dual-motor stocks) will need lower hitches be-

cause of the limited amount of movable weight in these classes. Even the batteries must remain in their stock location. For these classes, start with the hitches at 1½ to 2 inches and go from there.

Regardless of the class, put

the hitch point behind the rear-axle center line. In some cases, putting the hitch point farther forward will help weight transfer, but this same transfer can also cause the vehicle to do wheelies and lose control. It could also flip over.



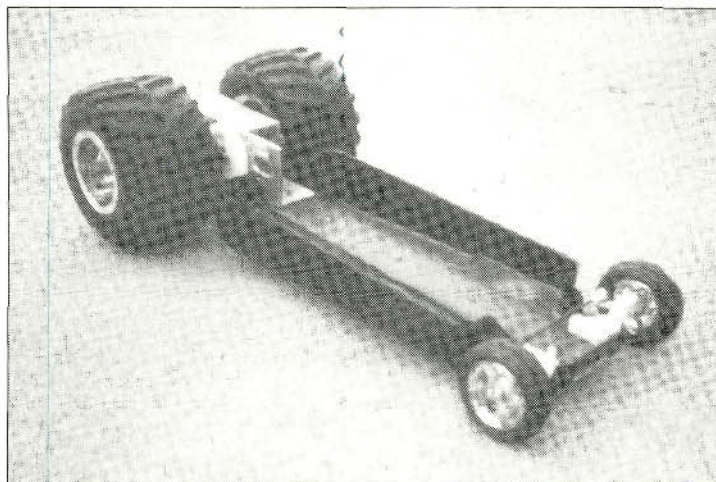
Make the weight work

Weight placement works with hitch height. Mount the front bracket so that the weights are as far forward as the rules will allow for your class. In the stock and super-stock classes, the weights will extend several inches in front of the front bumper, but they may only have to support 1 pound, or so.

On the modified and open chassis, the bracket will be much shorter, but it may be supporting 6 or 7 pounds. Because of the amount of weight being supported, the bracket has to be very strong. Faster speeds will need more weight up front; so will higher hitch placement, or pulling on a high-traction surface, such as carpet.

Lower hitch heights or surfaces with poor traction, such as dirt, will require more weight in the rear. Put only enough weight up front to maintain steering control, and be sure to balance the weight, left to right, in the chassis so that the tires have equal traction. Don't put any weight behind the rear axle, and don't use weighted tires, because they act as giant flywheels that put tremendous strain on gears and axles and slow acceleration off the starting line.

By lengthening the wheelbase, choosing the proper hitch height and moving weight forward, you'll gain the leverage that will help provide more traction for the rear tires, and you'll retain good steering control.



Tire Tips

Tires have the greatest development potential, especially if hitch heights are lowered for 1990.

On carpet, bar-tread tires work well if they're filled with foam donuts. Use firmer foam on high-traction tracks, or with faster tire speeds; and use softer foam with slower tire speeds, or when you pull on dirt. The donuts are made of the foam material that's used in 1/10-scale tires, and they're cut from ½- to 1-inch-thick flat sheets. Make sure the foam fits tightly against the outside diameter of the tire and fits the rim tightly. Without glue, insert the donuts into the tire one at a time. Put adhesive or athletic tape on the rims; then insert the rims into the tires. If the foam fits properly, it will take several frustrating minutes to work the rims into the foam-filled tires. Try not to tear the foam, but if you do, mend the small tears with tire glue.

If the foam fits tightly, you probably won't need glue to keep the rims from turning in the tires. If the rims do turn,

use tire glue, but apply the glue *after* assembly, and use a syringe or a glue-bottle spout to force the glue where it's needed. If you try to glue the tires in the usual way, you'll end up with dry glue and half-installed tires. Very messy!

Some pullers have had a limited success with sealing tires and filling them with air or ballast, but it's quite a hassle, and it isn't nearly as consistent or predictable as having foam inserts.

On hard, dry, dirt tracks, try foam tires or short pin spikes, and aim for approximately twice the tire speed that's used when carpet is a starting point. (Try more speed, if you have the power.)

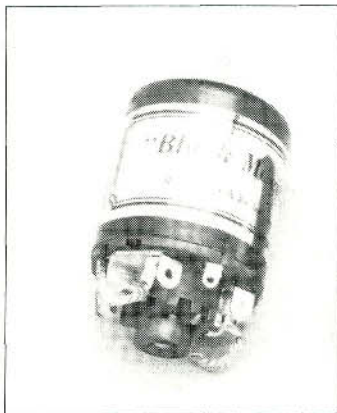
Note: Don't go overboard on tire size; too big is worse than too small. With big tires, gear and motor strain is much more severe; the proper overall gear ratio may be difficult to achieve with big tires; and the reduction of pounds per square inch on the track may hurt traction, especially on dirt.



High Voltage

Use SCR* batteries and as many cells as are allowed. With the possible exception of Open Class II (where pullers up to 25 pounds are allowed), put all the cells in series (higher voltage). In Open Class II, multiple motors are usually used, so dividing the cells between them may work

well. In any case, use speed controllers and wiring that are suitable for the loads you'll create. I use PDI* Hydro Zeta speed controllers on all team Pro Pullers, and I've had excellent results. To eliminate radio glitches, use capacitors, filters and ground straps as needed.



Torque, not Rs

To simplify gearing, motors designed for pulling have huge amounts of torque and lower rpm. Because they're designed to carry the high amperage demanded by pulling without burning up, they'll last longer than other motors. Don't use drag-racing motors; they require much more gearing, and the extra friction will use up the little torque they have.

I use Black Magic* and Team Astro* motors, and both are excellent. The rules for 1990 may impose cost limitations on motors for Open Class I, but I expect most tracks to modify or drop this rule if it gives a particular motor or manufacturer an unfair advantage. Many new brands of pulling motors are becoming available, so check with your local dealer.

Gear to pull

In general, when you're on carpet, choose gears so that the vehicle moves at a fast walking pace while under full load. On dirt, much faster tire speed is needed—perhaps twice as fast. In both cases, gear faster if you have enough power; gear slower, if the motor pulls down badly. Remember, the tires should spin out *before* the motor stalls or overheats badly.

On stock- and super-stock-class pullers, you'll probably have to use tires that have a smaller diameter than stock tires to get the overall gear ratio slow enough to pull well with the gearbox, motor and battery limits. Determine which tires work well on your track, and experiment from there.

Closing Tips

These suggestions have been brief, with little explanation of why they work, and each could be a whole article. If one factor is changed (tires, for instance) then other factors, such as gear ratio, weight placement, or hitch height, might require slight adjustments. Performance can be improved by continually looking at each factor and then adjusting the others to balance. Some manufacturers who introduce new products for the pulling market will claim that huge weights can be pulled. Make sure that these claims are for class-legal pullers, and note the weight of the puller. Also, be aware that there are tremendous differences in the way sleds pull and in track conditions.

It's much easier to start with a vehicle designed especially for pulling, and it may be less expensive, because pullers should come with the appropriate tires, weight brackets, extended wheelbase, and gear ratios. Be sure that you can make fast, simple gear changes and that the correct motor-pinion clearance can be easily set and maintained.

If you want a puller to compete in Open Class I (NR/CTPA), choose one that's light. A heavy puller will usually be heavy in the rear, and this severely limits the weight that can be put up front for carpet pulling. Many clubs and tracks are dividing this class for 1990. The new class (called "Econo" or "Sportsman" 2WD) has the same rules as Open I, except for a 10-pound vehicle weight limitation, a ROAR-legal stock motor and 7-cell battery packs. This class will be extremely popular, because most pullers have spare parts lying around, and with a little work, they could enter the competition.

I've covered a lot of ground here, and I hope you will, too, the first time you hook up to a sled. Good luck and good pullin'!

**Here are the addresses of the manufacturers mentioned in this article:*

SCR, Sanyo Electric, Battery Division, 200 Riser Rd., Little Ferry, NJ 07643.

PDI, 16922 N.E. 124th St., Redmond, WA 98052.

Black Magic, R/C Research Engineering, 7517 10th St., Stanwood, MI 49356.

Astro Flight, Inc., 13311 Beach Ave., Marina Del Rey, CA 90292.

TRUCK STOP

by DAVE SPROUL

WEIGHTY ISSUES

R/C PULLERS have become obsessed with the weight game; they think that winners are determined by how much they can pull. Not true!

Two years ago, sleds pulled 50 to 100 pounds; now they're up to the 300- to 350-pound range. While these increased sled weights aren't necessarily bad, it's time to level off. Weight *isn't* an issue in full-scale pulling competitions; it's only used to stop a pulling vehicle when it runs out of power, traction, or both. So how are winners determined?—distance is what counts in pulling: whoever pulls the farthest, wins! Sled weight isn't important, since it's the same for everyone in the class.

As sled weight increases, so does the wear and tear on your vehicle. It costs more to pull heavier sled weights, because burned motors, smoked batteries and stripped gears—among other things—frequently have to be replaced. (This type of damage can happen with lighter weights, too, but less often.)

The use of these heavy weights will eventually force some participants to drop out because of the high cost of staying



competitive; some of us don't want to have to keep replacing our \$80 modified motors. Since we want to see the R/C pulling sport continue to grow and attract new competitors, it's imperative that the sled weights be kept in check. Lowering the hitch-height specifications would be one way to achieve this: the lower the hitch, the less you can pull, but the competition remains equal because everyone has the same disadvantage.

The bottom line? Pulling is a distance sport, not a weight competition; and it doesn't matter what the sled weighs. Whether the sled weighs 50 pounds or 300 pounds, the competition is the same, but it's more fun when you don't have to spend much on repairs.

In an attempt to level the weights, there

will probably be some rule changes this year (300 pounds maximum in the Open Classes would be OK).

That's it for this month. You may have noticed that "Truck Stop" has now appeared for two consecutive months, instead of alternating. It's Hemstreet's fault! He made me do it for this Monster Truck issue. Look for "Truck Stop" in the June issue, when we'll be back on schedule. Till then, may your truck be *bad!!!*

**Here are the addresses of the companies mentioned in this article:*

Parma International Inc., 13927 Progress Pkwy., North Royalton, OH 44133.

MRP, 200 Carter Dr., P.O. Box 267, Edison, NJ 08818.

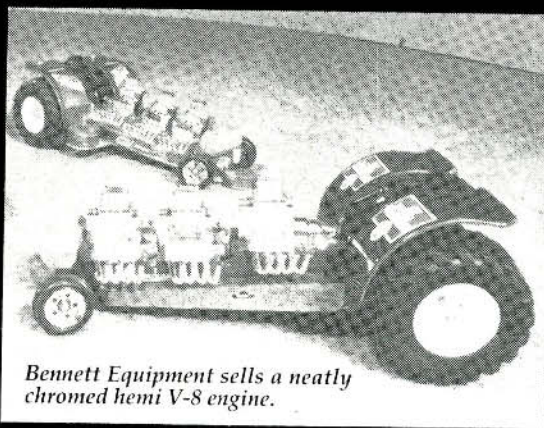
Bennett Equipment, 900 E. 1300 S., Romney, IN 47981.

THE HEMI IS BACK!

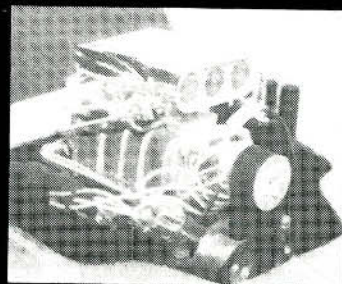
If you've been drooling over the 1/10-scale Keith Black Hemi in my Quicksilver truck, here's good news for you: the engine kit will soon be released by Parma International*. The company will use the original MPC molds, and the sample kit I saw looked *good!*

Since these kits were produced only briefly in the early '70s, the molds are in good shape and the parts have very little flash. I think this is the only plastic model engine ever produced for a 1/10-scale car kit. It will come completely chromed, but if you want to paint some of the parts, simply spray them with a name-brand oven cleaner, let them stand for 10 to 15 minutes, and then rinse them with hot water. This will remove the chrome plating but it won't affect the styrene plastic, which is now ready for painting!

The kit includes only headers for funny cars, so if you plan to use it in a truck, you'll have to scratch-build a set of headers. If you want the ultimate accessory detail for your



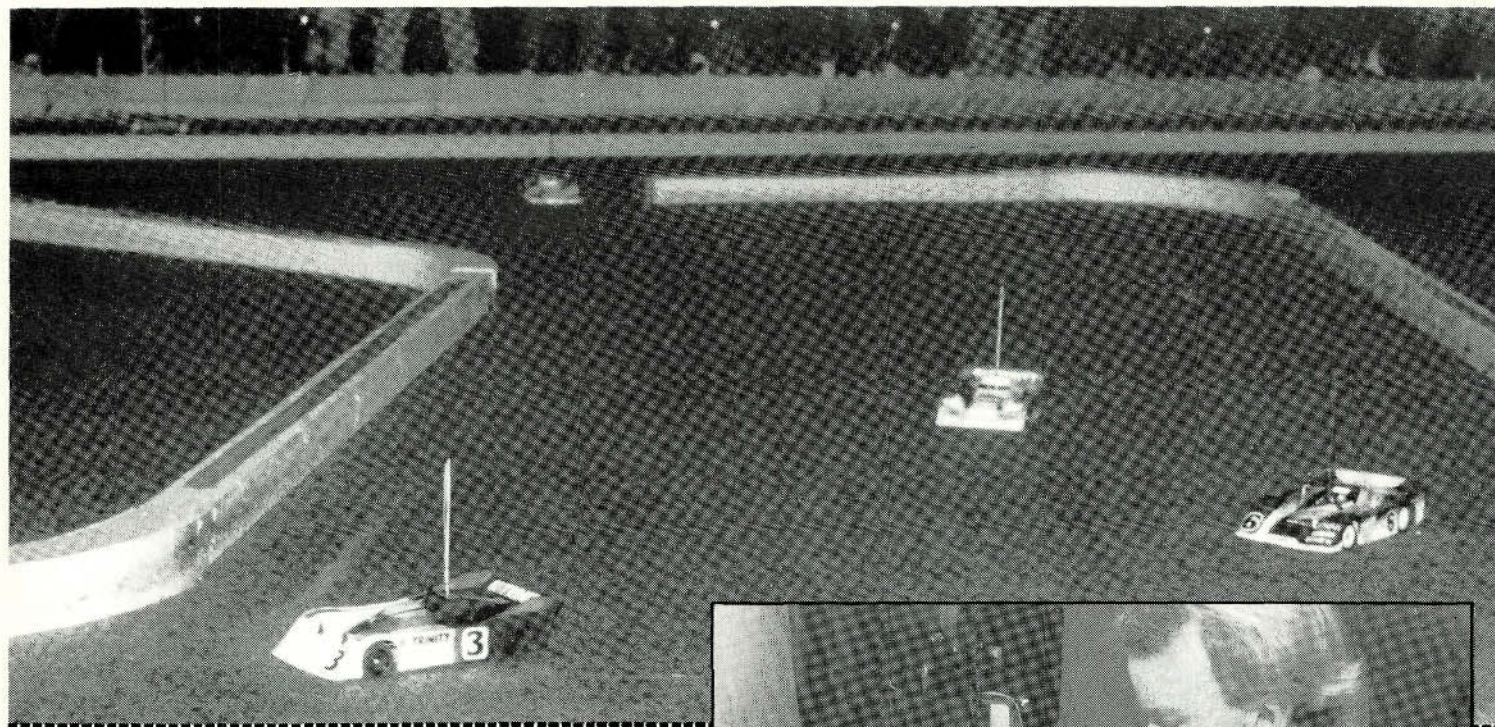
Bennett Equipment sells a neatly chromed hemi V-8 engine.



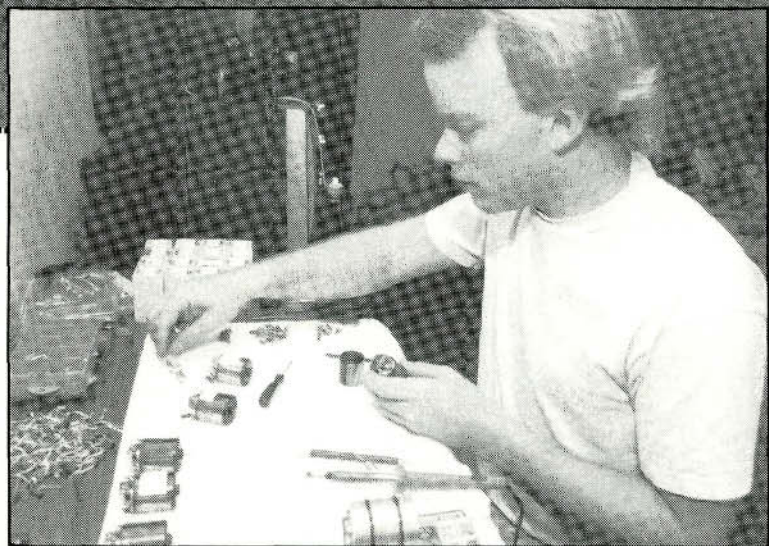
Parma will release a highly detailed replica of the Keith Black Hemi. It will be made from the original mold, circa early '70s.

truck, this engine is for you! It should also be popular with drag racers and would look really good in MRP's* Outrageous drag boat! I'm told that its retail price will be somewhere between \$10 and \$15 (a bargain, in my book!).

Bennett Equipment* also sells a 1/10-scale, molded, chrome hemi V-8 that can be used on pullers or dragsters. This is the motor that Bennett uses on its Pro Puller II bodies, and it's available for \$5.



MOTOR TUNING



Erik Soderquist works on a 1/12-scale motor at the U.S. Indoor Championships.

by ERIK SODERQUIST

UNVEILING THE MYSTERIES OF 1/12 SCALE

WHICH MOTOR should I run? Ever pondered this question? After all, motors play a major part in winning in 1/12 scale and other forms of R/C car racing. Although they may look like those used in 1/10 scale and have the same magnets, end bells and stickers, 1/12-scale racing motors are set up very differently from all others.

Because a 1/12-scale race lasts 8 minutes, efficiency is the name of the game. The

items motor builders change on 1/12-scale motors include brush composition and style, spring tension and winds.

Suggested motor winds for 1/12 scale range from 19 to 23 turns for 6-cell racing and from 13 to 16 turns for 4-cell racing. (Because the internal resistance of 4-cells is higher, lower winds are required to maximize the available power source.) The wind you use will mostly depend on the size of the track. For a large 6-cell track, a 20-turn motor

is a good starting point. A large 4-cell track requires a motor in the 14-turn range. As a general rule, a tighter track requires a motor with a higher wind (which produces more low-end torque).

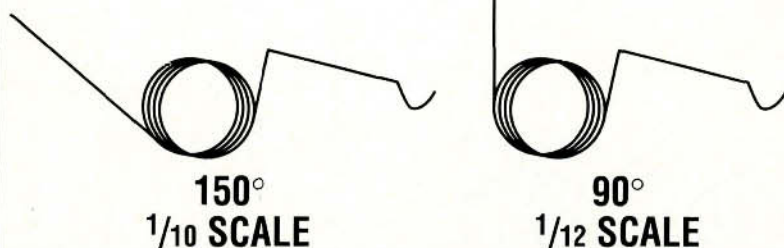
Your decision about whether your motor should be a single, double, triple, etc., must also be based on the track. If the track is tight with many short chutes, a single will provide additional torque. On long tracks, where

(Continued on page 90)

MOTOR TUNING

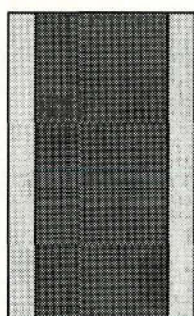
(Continued from page 88)

SPRINGS



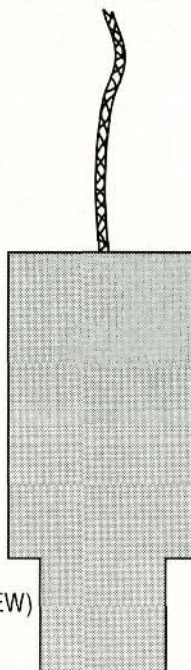
Above: For lighter tension, a spring with a 90-degree bend is used for $1/12$ -scale motors, but $1/10$ -scale motors need the stronger tension of 150-degree springs.

$1/12$ -SCALE BRUSHES

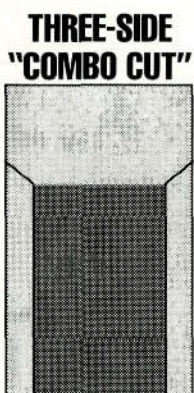


(FRONT VIEW)

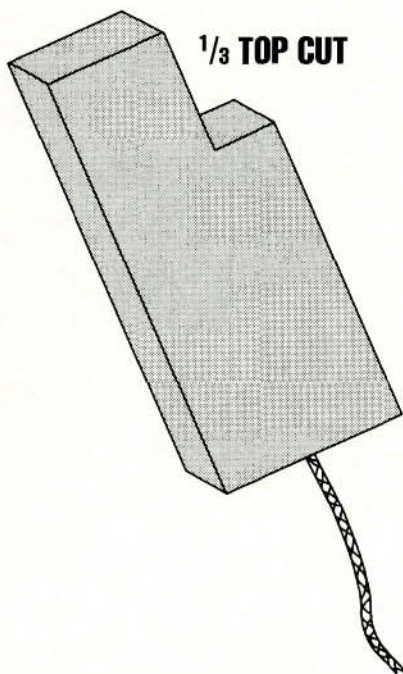
← SIDE CUT →



(TOP VIEW)



(FRONT VIEW)



$1/3$ TOP CUT

efficiency and top end are the ticket, triples and quads are the motors of choice.

Motor brushes may be the best tuning aid available. There are many on the market, and every manufacturer seems to have at least a hard and a soft compound. Soft-compound brushes are for all-out power, but at the expense of some run time; harder brushes are easy on the commutator and very efficient.

Cutting the brush is the next step in tuning. Cutting approximately one third off the top of the brush will solve the problem of short run time; if more torque is needed, cut a little off both sides; and for maximum power at high speed, use the full brush. Most motor manufacturers cut both the top and sides to achieve the desired results.

Spring tension on $1/12$ -scale motors differs from that of other motors and isn't much help in tuning. Because most $1/12$ -scale motors are run on smooth tracks at relatively low rpm, lightweight 90-degree springs are preferred.

Remove the mystery from selecting and tuning a motor for your $1/12$ -scale car by following these guidelines. A little experimentation should lead you to the winners' circle! ■

Brushes are the key to making your motor fly! This illustration shows the three basic cuts used in $1/12$ scale.

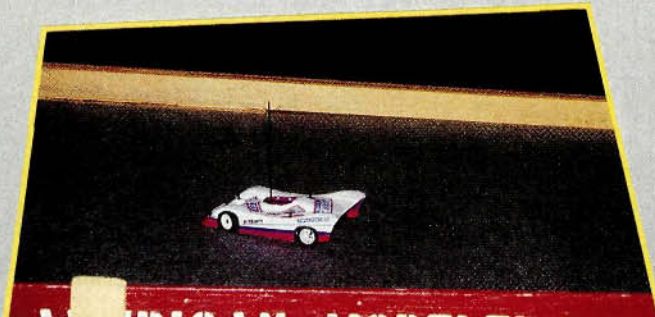
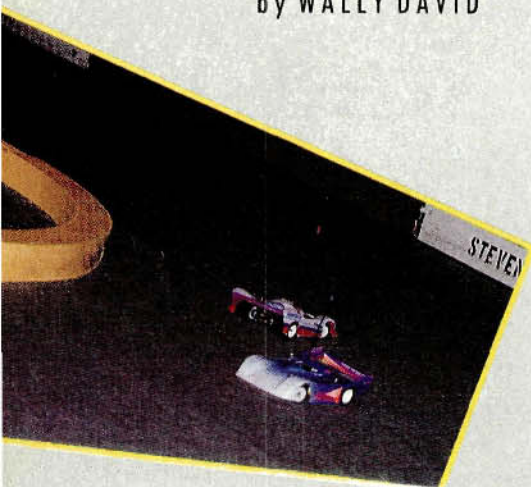
U.S. INDOOR CHAMPIONSHIPS

TURKEY & 1/12
SCALE
IN CLEVELAND



by WALLY DAVID

THE CLEVELAND U.S. Indoor Championships has earned a reputation as the largest 1/12-scale race. The year of its tenth anniversary was no exception, as a whopping 390 entrants registered before the November 1 deadline. The country's longest-running major electric race would obviously prove to be crowded, if nothing else!





Left: Andy Dobson—hard at work on the car that took him to the Modified A-Main win. Center: This closeup of Dobson's car shows that it's a miniature version of the Composite Craft Lynx II 1/10-scale car. Above: Dobson (second from the left) uses a twin-stick radio! He looks as though he should be driving a Clod Buster!

This year's Champs took place at the Holiday Inn in Independence, OH, over Thanksgiving weekend. If you've never attended a "hotel race," it's quite an experience. Instead of pitting near the racetrack, everyone works in the comfort of his hotel room. The management thoughtfully provided folding tables covered by old sheets, and they even supplied old towels to be used as rags. I

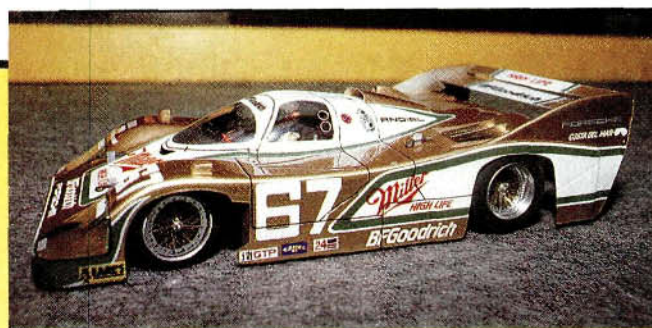
guess this was a smart move: no one used towels from the bathroom for anything other than taking a shower!

Unique to hotel racing is the electronic heat board that's displayed on the building's TV system. Racers were kept apprised of their heat times, so they didn't have to sit trackside, just waiting to race. They knew which heat was running, how much time was

left in the race, when their heat was due in tech inspection, and when they had to be on the line. The system was updated after delays, and this made for a very relaxed pace. The only thing missing was a video camera showing the track; with this, we could have followed the racing action from our rooms. Oh well!—maybe next year?

(Continued on page 95)

CONCOURS LETDOWN



It seemed like an afterthought—unimportant to the event's organizers; it was one of the weekend's major disappointments. The Race Director told me that on a scale of 1 to 10, Concours was a .5!

True Concours was easily won by Neal Everhart, who had a beautifully detailed Miller Porsche 962. The entire Parma body had been hand-painted by Neal (including the sponsors' logos!). His was the only replica of a full-size race car, and that's the main requirement for True Concours. The 2nd- and 3rd-place cars bore no resemblance to actual cars at all! The Andy's TOJ owned by Terry Win-

chester took the Best Paint award.

Concours judging took place at the end of the qualifying—at about midnight on Saturday, when the ballroom was almost empty! The number of entrants in the True Concours and Best Paint categories seemed small, and I think that some people had just given up and headed for sleepville. It was disappointing to see such artistic paint jobs go nearly unrecognized because there was almost no one around to see them!

TAKING A STAND!

Cleveland isn't alone; there's a definite problem with the way concours is

generally conducted. It's time to stop pretending that the all-too-common static model competitions we see are true concours events. These are radio-control race cars, not Revell or Monogram plastic models! Too many events have been won by a car with a realistic engine compartment or a working fire extinguisher!

Stand-off concours is a viable alternative. At last year's RC Thunderdrome event, the cars were viewed from 10 feet, and this eliminated the need for minutely detailed interiors and hand-painted decals. While it helped to have a driver figure

inside, it didn't need to be wearing removable goggles to win! A stand-off concours opens the event to many people, not just to expert painters and model builders.

It's also important that concours winners race the car in exactly the condition in which it was shown. I know some bodies that have attended more races than I have! After the judging, and without being raced, the body goes back into a bag, to be kept in pristine condition for the next event.

I've attended races in which the winner didn't even know the name of the person who painted his car's body! Is it worth paying a pro body painter \$150 to win a \$15 trophy? I have a friend who paints bodies that I sometimes enter at races, but I always give him the credit—and the trophy! I would never claim it as my own work; I'm just giving him an opportunity to have his work displayed at races he can't get to. Concours should be taken away from pro-

fessional painters and returned to the racers. I'd even like to see professional paint jobs outlawed, and I feel the same way about those done by anyone other than the racer. This would directly affect me (and my talented friend), but I think it would encourage average racers to enter concours and it would thus improve the hobby for everyone.

ROAR, NORRCA and any other clubs out there need to look at the situation and take a stand!

TURKEY DAY & TEE TIME

Thanksgiving day started with registration and signing up for practice time. Registration was to start at 10 a.m., but the long line that had formed by 9:30 induced Race Director Ray Cifani of NORCAR (the host club) to start the festivities early!

Once through registration, racers signed up for practice times, as the U.S. Indoor Champs used the "Tee-Time" system for the first time. The system (see sidebar) allows racers to reserve a practice time and then return to their rooms to work on cars, watch TV, visit other racers, or sleep. In past years, racers had to line up, cars in hand, and wait...and wait...and wait...! We still had to wait, but much less, and most agreed that it was a vast improvement.

In Cleveland, I was to participate in my first *major* 1/12-scale race; in fact, I hadn't raced 1/12 scale for more than two years! So who stepped with me onto the drivers' stand for my first attempt to tame Cleveland?—Joel Johnson, Tony Neisinger, Kent Clausen and Shawn Ireland! I was extremely nervous, but I managed to move out of the way to let them go by me every few laps. That they can avoid my car weaving around on the track is really a testament to their driving abilities. (To find out how I did, don't bother looking at the chart of winners; it doesn't go down that low!)

QUALIFYING

Friday and Saturday saw plenty of qualifying action, with two rounds of Stock and Modified each day. With heats from A to X in Stock and A to O in Modified, there was ample time to fix broken cars and watch qualifying!

Stock qualifying saw some close competition, with just three racers breaking the 40-lap mark. Parma provided the handout stock motors, and one powered Barry Baker's new Agitator 12 to the



Top Qualifier spot with 40 laps in 8:05.60. Driving an Associated 12L, Chuck Lonergan was close on his tail and turned 40 laps in 8:09.14. Chuck earned the second spot on the grid, and the Corally SP2 of Jon Orr qualified 3rd (also with 40 laps in 8:12.20). Also behind the controls of an SP2, Bill

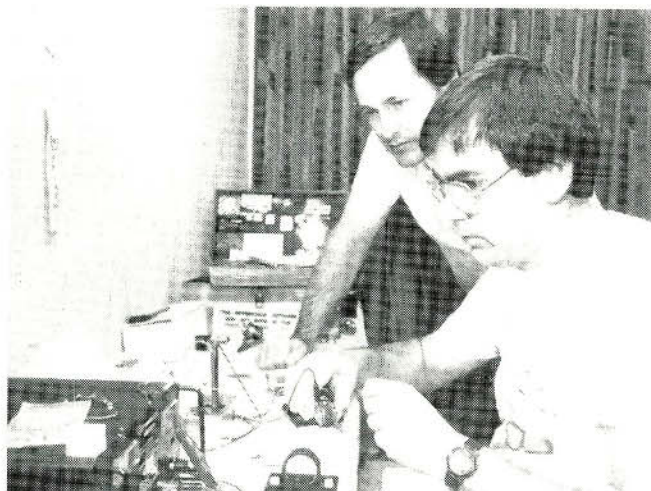
Schoenau was the fourth-fastest qualifier, turning 39 laps in 8:00.58. Had he been a fraction of a second faster, he, too, would have made 40 laps! The rest of those in the A-Main also turned 39 laps, as did six of the drivers in the B-Main.

To set up the heats, Qualifying

Above: Modified A-Main warm-up action! Andy Dobson was glad his car (left) didn't need its roll-over antenna in the race.



Far left: The new Corally 1/12-scale car is shown here with the new 1/10-scale version. Four of the new cars made the Modified A-Main. Left: A young racer has his car weighed-in during tech inspection. Every car was inspected before each heat and Main.



the higher heats. The rest of the heats were filled in alphabetical order. This made Jack Kloeber's qualifying effort an impressive performance, as he made the A-Main all the way from the P heat! (He's the cousin of Team Associated's Butch Kloeber)

The Modified Class was the Chris "Little Dude" Doseck show for the four rounds of qualifying, as he was the only one who turned 44 laps, and he did it in 8:08.55.

power to qualify 4th with 43 laps in 8:08.45. (just a few tenths of a second behind Johnson).

SUNDAY—THE FINAL DAY

Sunday morning saw the start of the Mains; the W through D-Mains in Stock and the O through D-Mains in Modified were run first. This allowed most people to finish their racing and then watch the top Mains in each class.

Stock TQ Barry Baker and second qualifier Chuck Loneran jumped into an early lead with Bill Schoenau in 3rd. Baker had some trouble on the long straight, and he had slipped to 3rd by the 2-minute mark. By the 3-minute point, Schoenau had closed on Loneran, and by halfway, Schoenau passed Loneran while both were working their way through traffic.

After 7 minutes, Schoenau had a commanding lead, and he went on to win with 40 laps in 8:07.86. Driving a Corally SP2, Jon Pens worked his way up from the 9th starting spot and nearly squeaked by Loneran on the last lap. Loneran managed to hold onto 2nd (turning 40 laps in 8:12.08), but Pens was close behind with 40 laps in 8:12.29.

After a first-turn pileup (you'd think the "big boys" would know better!), Joel Johnson "busts the move"—as ROAR's John Thawley is fond of saying—and took an early lead over Louis LeBlanc and TQ Chris Doseck. Around the 2-minute mark, Doseck was taken out from behind, and this allowed Tony Neisinger's Trinity-powered Agitator 12 to

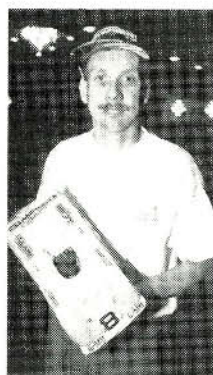
Above: Tate McDaniel, owner of CAM Motors, watches Bud Bartos tune Andy Dobson's motor. Right: Mitch Witteman (far right), who qualified 7th in Stock, works on his Parma hand-out motor. This clutter was typical throughout the hotel; batteries, chargers, etc., were everywhere!



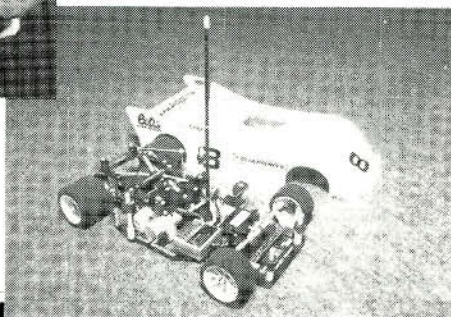
was to include individual "seeding" runs by each driver, but because there were so many entrants, this format was scrapped in favor of the standard four-heat setup. The heats were set up according to past driving performances, and the well-known racers occupied

During every round, his Cam-powered Corally SP12 was out in front. Like four other A-Main drivers, Doseck had one of the new Corally 1/12-scale cars that's soon to be released, and the drivers all seemed to be very pleased with their results.

Grabbing the 2nd spot with 43 laps in 8:05.73 was Mike Blackstock, who drove an Associated 12L with Reedy power. Team Trinity's Joel "Magic" Johnson, who drove a Trinity-powered Corally SP12, took the third position on the grid with 43 laps in 8:08.18. Behind the controls of an Agitator 12, Louis LeBlanc (the "Ragin' Cajun") used Twister



Modified Champ Andy Dobson and his "Baby" Lynx II.



MODIFIED

FIN	QUAL	NAME	CHASSIS	MOTOR	ESC	BATTERIES	BODY	TIRES (f/r)	TRACTION COMPOUND
1	8	Andy Dobson	Composite Craft	CAM 15D	Novak T1	Power Pushed	Assoc. TOJ	TRC Green	Paragon Ground Effects
2	4	Louis LeBlanc	Agitator 12	Twister 15Q	Novak T1	Twister	Assoc. TOJ	PD Posi-Trac	Paragon Ground Effects
3	3	Joel Johnson	Corally SP12	Trinity 12T	Corally	Trinity	Assoc. TOJ	Trinity Magic Rubber	Trinity Green Dot
4	10	Tony Neisinger	Agitator 12	Trinity 13T	Tekin 700	Trinity	Assoc. TOJ	Trinity Magic Rubber	Trinity Green Dot
5	2	Mike Blackstock	Assoc. 12L	Reedy 14T	Novak T1	Reedy	Assoc. TOJ	Yokomo	Paragon Ground Effects
6	6	Frank Calandra	Corally SP12	LRP 15Q	Corally	Stage III	Assoc. TOJ	PD Posi-Trac	Paragon Ground Effects
7	1	Chris Doseck	Corally SP12	CAM 14T	Novak T1	CAM	Assoc. TOJ	PD Posi-Trac	Paragon Ground Effects
8	7	Mike Ebert	Assoc. 12L	Reedy 14T	Novak T1	Reedy	Assoc. TOJ	Assoc. Green	Paragon Ground Effects
9	9	Bob Light	Corally SP12	Trinity 14T	Corally	Trinity	Assoc. TOJ	Trinity Magic Rubber	Trinity Green Dot
10	5	Joe Lawrence	Assoc. 12L	Peak Perf. 13T	Tekin 700	Peak Perf.	Assoc. TOJ	TRC Green	Paragon Ground Effects

move up from the 10th starting spot to 3rd.

Andy Dobson, with a Cam-powered Composite Craft "Baby" Lynx II (a prototype 1/12-scale version of the Lynx II) steadily worked through traffic to take over 4th. After 4 minutes, Dobson was turning faster lap times than the leader, Johnson, and he began to put incredible pressure on Neisinger's 3rd-place car. At the 6-minute mark, Dobson put the a great move on Neisinger and started to close in on Johnson and LeBlanc.

With 20 seconds to go, Dobson pulled right up on LeBlanc's bumper, as both came rushing up on a slowing Johnson, passing the "Magic Man" with only 10 seconds left. In what all agreed was the most exciting finish they could remember, as they swept under the timing bridge, Andy Dobson slid by LeBlanc to take the 1989 U.S. Indoor Championships with 44 laps in 8:10.79, followed by LeBlanc with 44 laps in 8:10.88—less than 1/10 second behind!

QUESTIONABLE COUNTING?

There were a number of problems with this year's Cleveland race, and they stemmed mostly from the number of entrants allowed! There weren't enough NORCAR members to handle horde of enthusiastic racers who descended on the track, and this drastically slowed tech inspection and radio impounding.

There were supposed to be no more than 350 registered drivers, but 390 were accepted. Those 40

additional racers added four heats of 10 cars, and this added more than 2 hours of racing to each day. Qualifying started at 8 a.m. and lasted until nearly midnight each night. Whew!

After holding this event for nine years, you'd think NORCAR would have figured out that 350 racers are too many, and that allowing nearly 400 is out of the question! Race Director Ray Cifani told me that no more than 300 will be allowed next year (and this means that 350 racers will probably compete!).

TEE TIME

This year, for the first time at the U.S. Indoor Champs, we had the Tee-Time system to make practicing go more smoothly. Devised by Ted McCarthy, who's the president of the Grand Rapids Rivertown Racers, the Tee-Time system takes a tip from the golf handbook and requires racers to sign up for a specific practice time. You're given the first available time slot in which no one has your radio frequency. When your allotted time arrives, you run for 8 minutes, and you can make your tuning adjustments without having anyone breathing down your neck as he waits for the frequency pin.

In the past, racers had to wait to practice—sometimes for more than two hours! In theory, with Tee-Time sign-ups, there should be a minimum of waiting in line; you

know when your practice time is, and you don't have to waste time just standing around, but can work on your car in your room, or otherwise occupy yourself.

At Cleveland, however, things didn't run as smoothly as they should have. Since racers weren't allowed to sign up for practice times until after they had registered (as McCarthy had suggested and does in his club's races), a long line formed, with racers rushing from registration to Tee-Time sign-ups.

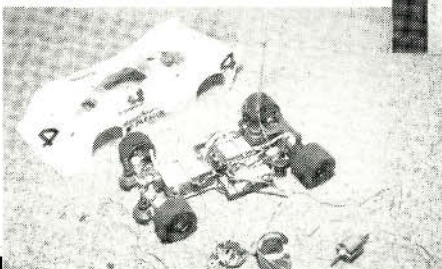
Signing up for more than one slot at a time wasn't al-

lowed, so racers had to line up after each practice, and the line never really shortened. Only later was a second line formed to let drivers coming off the drivers' stand sign up again. After this, the line was a little shorter.

When operated as Ted McCarthy intended, the Tee-Time sign-up looks like a terrific system, and I hope it will soon be accepted by race organizers all over the country. Just think: having to wait in a long line to practice may soon be a thing of the past. Let's hope so!

Given the sheer excitement of both A-Mains, however, come next Thanksgiving, everyone will probably forget about the difficulties and flock back to Cleveland—including me!

The motor of Stock winner Bill Schoenau was torn down after the race and found to be perfectly legal.



STOCK

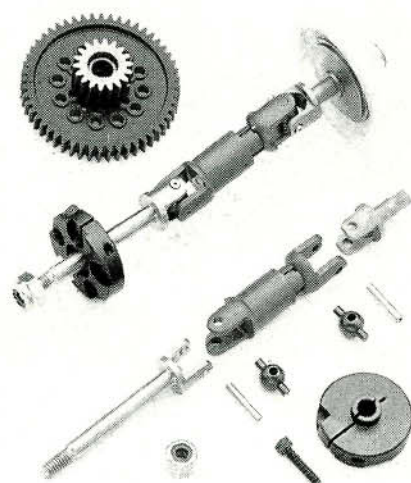
FIN	QUAL	NAME	CHASSIS	MOTOR	ESC	BATTERIES	BODY	TIRES (f/r)	TRACTION COMPOUND
1	4	Bill Schoenau	Corally SP2		Corally	Power Pushed	Assoc. TOJ	PD Posi-Trac	Paragon Ground Effects
2	2	Chuck Lonergan	Assoc. 12L	H	Novak 1	Adavantage	Assoc. TOJ	Boss Racing Green	Paragon Ground Effects
3	9	John Pens	Corally SP2	P	Novak 1	Power Pushed	Assoc. TOJ	PD Posi-Trac	Paragon Ground Effects
4	6	Jack Kloeber	Delta Spyder	A	Head	Kloeber Cells	Assoc. TOJ	Twinn-K Green	Twinn-K
5	3	Jon Orr	Corally SP2	R	Tekin 600	Stage III	Assoc. TOJ	PD Posi-Trac	Paragon Ground Effects
6	5	Dean Smith	TQ Eagle	M	Novak 1X	Power Pushed	Assoc. TOJ	TRC Green/Yokomo	Paragon Ground Effects
7	1	Barry Baker	Agitator 12	A	Novak 1X	Twister	Assoc. TOJ	PD Posi-Trac	Paragon Ground Effects
8	8	Jason McWethy	Assoc. 12L	T	Dialed	Power Pushed	Parma Osella	TRC Green/Yokomo	Paragon Ground Effects
9	7	Mitch Witterman	Assoc. 12L		Dialed	Power Pushed	Parma Osella	TRC Green/PD Posi-Trac	Paragon Ground Effects

NEW FROM THORP

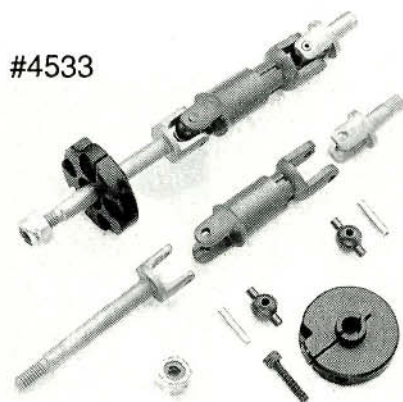
Thorp Manufacturing's introduces three new kits to help you get even more performance from your Blackfoot and RC-10. Check 'em out!

For your Blackfoot:

#2020



#4533



For your RC-10:

#4750



See your local hobby dealer or contact:

THORP

manufacturing INC.

4054 E. Mission Blvd. • Pomona, CA 91766
(714) 622-6518, FAX (714) 622-2947

Catalog \$2.00

© 1990 THORP MANUFACTURING, INC.

HOT TRACKS

by RICH HEMSTREET

Welcome to "Hot Tracks." Each month, we'll choose an outstanding track to feature in this column. To qualify, send in some high-quality, black-and-white photos of your track, along with a description (approximately 500 words), and tell us why your track should be chosen. Send your entries to Hot Tracks, Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897.



Asheville Hobby Speedway, Naples, NC

DURING A RECENT family vacation to North Carolina, I had the opportunity to visit Jack and Sharon Murdock's Asheville Hobby Speedway on Highway 25 in Naples, NC. North Carolina is the heart of full-scale stock-car racing, and Asheville Hobby Speedway, along with Competition Hobbies, features R/C stock-car racing. Every Saturday night, racers flock to the tight, indoor oval with replicas of NASCAR stock cars. Unfortunately, I didn't have my car with me the Saturday night I was there: it looked like the *ultimate* track!

At the outside wall, the asphalt track is 185 feet around. The surface is 14 feet wide in the turns and 10 feet wide on the straights, so it offers plenty of room for passing, although the infield can be very slick if you drop down that low. Even though it's banked 13 degrees, this is definitely *not* a horsepower track.

Three classes race at the track regularly: the 42-ounce Stock Class, the 48-ounce Stock Class and the Pro Stock Class, which runs Speedworks 0005 Speedway motors. Asheville Speedway

has an AMB computer scoring system that's very helpful: hand counting cars that turn 3.5-second lap times for 5 minutes wouldn't be any fun!

The double-deck drivers' stand lets racers choose the level from which they want to drive: track level or eye-in-the-sky. Upper- and lower-deck pit space provides room for roughly 75 drivers. A bleacher section is also located on the upper level, above the officials' scoring booth.

David Roger's Competition Hobbies shares the building with the track. This well-stocked hobby shop carries all the parts needed to keep the customers' on-road cars running strong.

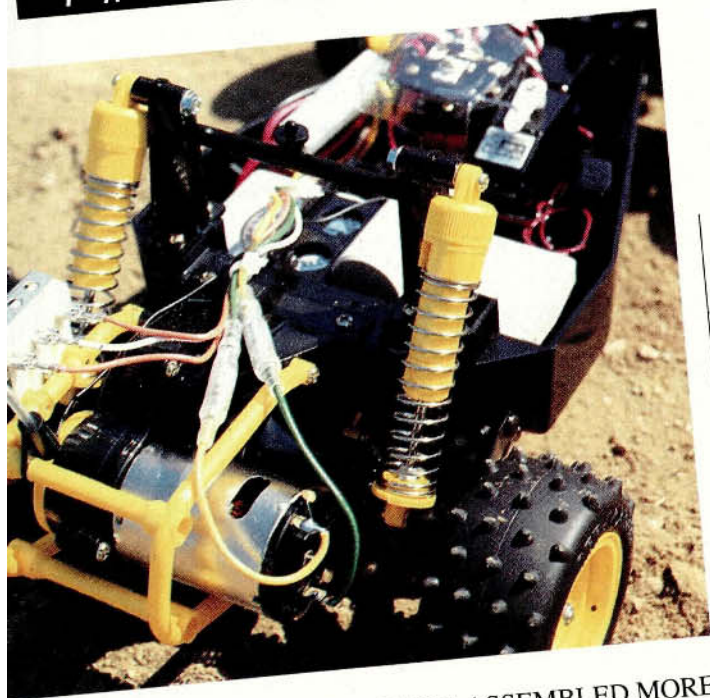
Jack claims that the key to getting hooked-up on Asheville Speedway is using Twinn-K black-dot tires all the way around. The track has just added a Super-speedway class to its weekly lineup of 5-minute races. This class uses hand-out Speedworks motors in quick-change cars that run 250-lap features.

If you're ever in the vicinity of Naples, NC, be sure to check out Asheville Hobby Speedway and Competition Hobbies. ■



TAMIYA

FALCON



by ART SCHROEDER

I'VE ASSEMBLED MORE than a dozen types of R/C car in the past three years. Most came as complete kits with well-made parts, excellent hardware and more-than-adequate instructions. Products made by Tamiya* are among the best.

THE KIT: The Falcon, my latest effort in 1/10-scale off-

road racers, is no exception. This kit has well-molded, smoothly finished parts that are rugged and fit perfectly. The hardware, metal parts and accessories (like the speed controller) are equally good. The instructions are "fail-safe"; if you foul up this kit, you didn't read the instructions or follow the many diagrams. When you're assembling the Falcon, if a part doesn't fit, you have the wrong one!

The Falcon is a 2WD off-road vehicle powered by the popular RS-540S motor and either a stick or humpback 7.2V battery pack. It has 4W independent suspension (double wishbone in the front, single trailing-arm in the rear) with large, plastic, oil-filled, coil-over shocks on each wheel. A bathtub-type ABS frame serves as a chassis and

equipment pod, and the kit includes a three-speed-forward/reverse, step-type mechanical speed control. The wheels are made of nylon, with spike tires on the rear and thin, ribbed ones up front.

The Falcon is designed for battery eliminator circuit (BEC) radios; i.e., radios with circuitry that allows them to operate on the car's 7.2V primary drive battery. If your radio doesn't have BEC, that's no problem; the kit provides instructions and parts for mounting a regular 4-cell radio pack, too. From MRC, you can also buy a BEC wiring harness to fit many 2-channel car radios. The harness replaces the radio's 4-cell pack and directly connects the Falcon's speed control to the battery. I can't add anything to the information supplied in the Falcon's instruction book; Tamiya in-



structions are always top-quality, and construction went smoothly. So where does that leave us in the review? I've already told you about the great parts and straightforward instructions—I guess I'm finished. Not quite!

Tamiya offers a very simple paint job for this car; no airbrush is needed—just

some masking tape, a few bottles of paint and a brush. Wash the inside of the car with water and a little detergent, rinse and dry well. Then, mask the windows and the places where red paint will go. Paint the black areas first; otherwise the black may show through the red.

No matter how bad you are

with a brush, when you paint on the inside of a clear plastic body, the outside will look great! I finished the body with decals supplied in the kit, and after a two-hour effort, I had a gleaming paint job!

PERFORMANCE: The most important thing is how well a car runs when it's all

(Continued on page 104)

SECOND LOOK SERIES

FALCON UPDATE

by STEVE POND

IN ITS DAY, the Falcon was one of Tamiya's most advanced off-road designs, but it never grabbed the spotlight the way its predecessors had. One reason was that it came right on the heels of Associated's RC10 (which captured the attention of the entire R/C world) and just ahead of the Kyosho Ultima.

Nevertheless, the Falcon was an improvement on the earlier Tamiya cars. With its fully independent suspension, oil-filled shocks on each corner, and what was considered to be Tamiya's best gear differential, the Falcon was a stout competitor in its class. With any car, however, there's room for improvement.

Because the Falcon was overshadowed by the RC10 and the Ultima, and because it performed respectably out of the box, there wasn't much after-market involvement. Fortunately, the hub, the axle and other parts are similar on all Tamiya cars, so crossovers can be used on the Falcon.

Ball bearings head the list of improvements that can be

made to this car. Like the other Tamiya kits in its class, the Falcon comes with the now infamous plastic bushing. Changing the wheels and tires will enable you to tune the car more effectively to a particular racing surface. Although Tamiya oil shocks work well, you'd be better off adapting a Kyosho Gold or an Associated RC10 shock for competitive racing.

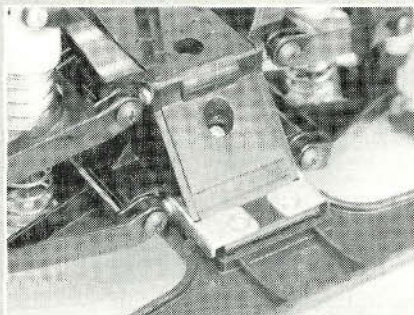
You can experiment with motors, electronic and mechanical speed controllers, and other universal performance accessories, too. Despite a lack of product-specific accessories, there are enough useable parts from other Tamiya cars to let you modify the Falcon to suit your needs, provided you don't want to compete against high-tech racing machines!

Accessories should add some fire to your Falcon's performance, or you can leave it stock. Whichever option you choose, this car is designed to last. While the Falcon won't qualify you for the Worlds, it should last through a few of them!

FALCON MINI BUYERS' GUIDE

Here are some of the accessories that have been made for the Tamiya Falcon during the last few years. You may not be able to find products designed specifically for the Falcon, but many of those made for other Tamiya cars will fit it. Although the Falcon never earned a reputation as being the car to have, it fills a niche between the basic, entry-level cars and the high-tech racing machines. With the help of these and other items, the Falcon should give you, and the competition, a good run for your money.

PRO-TRACK

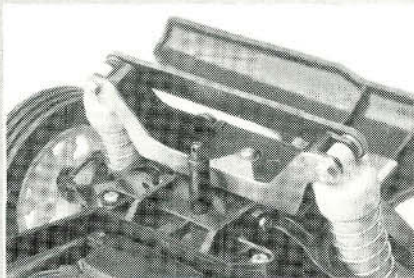


FALCON NOSE SUPPORT

Pro-Track's new support bracket for the Falcon's nose adds strength to the D part, which is susceptible to breaking. The kit features three zinc-plated steel brackets that you can bolt right on without having to modify your car.

Part no. 023FFNSBKT

Price: \$7.80



SHOCK-TOWER SUPPORT BRACKET

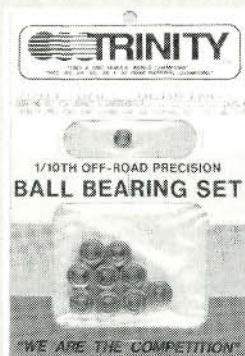
With a front shock-tower support

bracket on your Falcon, roll-overs won't be a problem; and shock-tower breakage won't put you out of the race if you have Pro-Track's retrofit steel-and-fiberglass support combo. Even when mounted *after* a collision, this kit can get your ailing car back on the road.

Part no. 026FAFSTAB

Price: \$7.95

TRINITY



PRECISION BEARINGS

Trinity brings you complete ball-bearing sets that include all the bearings necessary to replace every bushing in your car or truck chassis. This is a great way to improve your vehicle's performance!

Part no. 7088

Price: \$29.95

put together. Wheel camber is fixed on this car, but the front toe is adjustable. This suspension is very effective, and I had few problems with the wheels leaving the track surface. Because the course I run on is rough, I adjusted the shock collars to a fairly stiff setting. There are two oils and coil-over collar adjustments with which to do this.

The Falcon is quick and

can handle even the sharpest turns without spinning out. Because of its absolutely smooth underpan, the car doesn't get hung up on rocks or other debris on a dirt track. Takeoffs are impressive on loose dirt, and the car leaves behind what looks like the rooster tail that's shot up by a racing boat!

Plastic wheel bearings are included, but optional ball

bearings are available and should enhance the Falcon's already strong performance. There are other optional bearings for use on the gearbox and, of course, replacements for the standard RS-540S motor.

I used an Altech* Acoms Techniplus 2-channel, 2-stick rig radio. This is an economy system without "whistles and bells," but I didn't miss the

endpoint adjustments or servo-reversing. The radio slipped easily into the Falcon, and all servo directions were just right. It functioned flawlessly with very smooth stick action. Although I prefer pistol-grip controls, I had no problem using the sticks. I recommend that you use the Ni-Cd option on the transmitter to save the money you'd spend on alkalines.

CRP

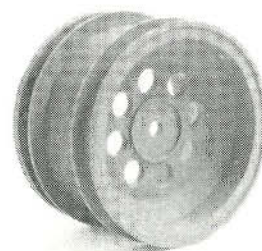


FALCON REAR AXLES

CRP produces replacement axles for the Falcon. They're designed as direct replacements for the stock dogbones, which fail prematurely as a result of overheating. Not only are these axles stronger and more efficient, but they're also built to withstand heat.

Part no. 1616

Price: \$3.99



ONE-PIECE REAR WHEELS

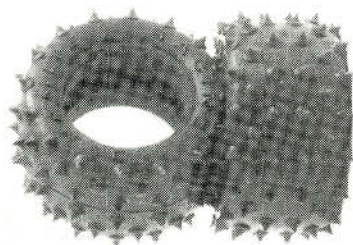
Here's a one-piece rim for the Falcon. These rims are made of tough, pliable white nylon that you can dye if you want a different color.

Part No. 4119

Price: \$6.99

DYNAMITE REAR TIRE—SPIKED

This tire fits CRP no. 4113 and stock RC10 rear rims, and it will also fit the Falcon rear rims with modifications. With its new, low-profile, mini-spiked

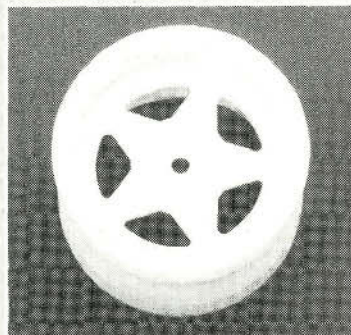


tread pattern, it gives better traction on most tracks.

Part no. 4234

Price: \$9.99

PRO-LINE



TAMIYA WHEEL

Pro-Line has a light, one-piece, replacement wheel for the Falcon. The 2-inch rear wheel fits late Tamiya vehicles; the 2.1-inch front wheel fits all Tamiyas.

Part no. 2517 (2-inch rear wheel);

2522 (2.1-inch front wheel)

Price: \$5.95/pair

The Falcon is a well-designed car that can get you racing with few problems. It's rugged enough that frequent practice won't wear it out or break it, and, fortunately, replacement parts are readily available if you do. This car is very attractive when finished in the "box" colors. I must admit I got a big charge from the Falcon!

*Here are the addresses of the companies mentioned in this article:
Tamiya/MRC, 200 Carter Dr., P.O. Box 267, Edison, NJ 08818.
Altech Marketing, P.O. Box 391, Edison, NJ 08818. ■

QUARTER FLASH

MODIFIED MOTORS

OVAL 11-16 TURN

OFFROAD 15-18 TURN

10th&12th ONROAD 14-17 TURN

MOTOR REBUILDS

AVAILABLE \$12.00

PLUS PARTS!!!!!!

QUARTER FLASH STOCK MOTOR

30 DEGREES, WET MAG.

ALL STOCK MOTORS ARE FULLY SEATED, DYNOTESTED AND READY TO RACE RIGHT OUT OF THE PACKAGE!!!!

QUARTER FLASH FLASH PACKS

SCE & SCR AVAILABLE IN 4, 6 & 7 CELLS

DEALER INQUIRIES
INVITED

QUARTER FLASH MOTORS

1143 N. WINSTEL

TUCSON, AZ. 85716

(602) 290-0833

HEAVY METAL CLODBUSTER

ESP

MANUFACTURING

7105 VIRGINIA ROAD
CRYSTAL LAKE, IL 60014
815-455-5440



NEW

CLODZILLA

ALUMINUM CHASSIS..... 99.95
HEAVY METAL PACKAGE
INCLUDES: CHASSIS, LIFT KIT,
STABILIZERS..... 109.95

PERFORMANCE

BALL BEARING SET..... 54.95
H.D. SPEED CONTROL..... 29.95
SPIKED RACING TIRES... 19.95/PR.
4 TO 1 GEAR
REDUCTION..... 99.95/PR.
WHEELIE BAR..... 24.95
40,000 RPM MOTORS..... 69.95/PR.

APPEARANCE

FRONT BUMPER..... 24.95
W/BRUSH GUARD..... 24.95
REAR TWIN TUBE BUMPER... 14.95
TWIN TUBE
LOWER BUMPER..... 14.95
CHROMED WHEELS..... 16.95/PR.
ALUMINUM WHEELS..... 69.95/PR.
ALUM. WHL. DISCS..... 29.95/SET

SUSPENSION

LIFT KIT..... 10.95
STABILIZERS..... 8.95
CHASSIS BRACE..... 10.95
RACING SUSPENSION KIT... 19.95
2" TRAVEL
KIT W/OIL SHOCKS..... 69.95
OIL SHOCKS..... 24.95/PR.



(IL Residents Add 6 1/2% Tax) *Outside Continental U.S. Include 6.00 Postage & Handling.
Send Check or Money Order with 3.00 Postage & Handling.



COMPETITION BATTERIES

THE ULTIMATE EDGE!!!

"A truly matched pack should be backed up with facts, . . . not empty promises!!!"

All of our cells have been processed and matched by "Stage III", the #1 Cell Matcher in the country.

Sanyo® 1700 SCE's available in four levels.

* SCR'S ALSO AVAILABLE *

SANYO® SCE's
in 4 Levels

RUN TIME | AVG. VOLTS
BATCH # | TEST DATE

CELL NAME	RECOMMENDATION	STAGE III#	\$/CELL
UNLIMITED	OVAL	675+	\$14.25
SUPER MODIFIED	ON ROAD	660-674	12.50
SUPER STOCK	OFF ROAD, ON ROAD	635-659	7.00
ULTRA STOCK	OFF ROAD	620-634	4.50

COMPETITION BATTERY SALES
32588 Dequindre, Warren, MI 48092



313-588-2740

3:30 to 7:00 p.m. E.S.T.

ERI

assoc., inc.

THE Electric R/C Car Specialist

(914)268-5090

FAX

(914)268-0462

OVER

125 Companies
Stocked

**DEALERS
ONLY!!**

50 North Harrison Ave., Unit #14, Congers, NY 10920

Advanced X2 A & L
Airtronics Aerotrend

Andy's Aristo-Craft

Ascot Associated

Astro Flight Autographics

Big Boy Toys Blk Magic

Blue Ribbon

Bolink B & F

Bondhus

Bruline Bud's Cheetah

Cam Checkpoint C&M

CMW Composite Craft

Cobra CRP Dan's

Dahm's Delta Dubro

Dialed Racing Products

Fine Design

Five Star

Edge Gonzo

Great Grease Houge

Hot Trick Hyperdrive

Jammin' (J.H.) Products

Imex JG Kimbrough

J-Car KO Propo KRP

KSC Lazerlite Leisure

Lightspeed Litespeed

Max Industries MCS MIF

McAllister MPE MRC

Miracle Speedway MRP

Norcal Novak Pactra

Paragon Parma Pitstop

Peak Performance

Power Pak ProLine

Pro Cut Protec Ram

Prog. Tech. Protrack

Race Co Race Master

Race Prep

Racing Silks

RC Perf. Spec.

Revtech RPM

Rochester Rcw.

Rockbusters RPS

Robinson Racing

Sassy Chassis SRS

Sermos Speedworks

Shinwa Stage III T&A

Stormer S.T. (Skis)

T.A. Emerald Industries

Team Hammer Tekin

Tecnacraft Thorp TM

TMS Track Master TRC

Traxxas Trinity Twinn-K

Twister Ungar You-G

Universal Energy Victor

WSS Inc. Zeta

NEW COMPANIES

Bold Creations

Competition Elect.

Jammin' (JH) Prod.

BRP CSC Minitech

MonolithicPwr Sply

Racer's Choice

Racing Scale Sport

Redline Smokin'

Sassy Chassis

Scat Racing VRP

Team Smooth

If you do not see it
here just ask!

WHAT'S NEW?

1. Sassy Chassis for Clod,
2. RPM JRX2 H arm conversion kit,
3. CSC telescoping rear "axels" for stock RC tranny,
4. Prog-Tech Super Gold batteries,
5. Black Magic & B&R new air supply stock motors,
6. Racers choice hy spin, spud drops & traction,
7. Tecnacraft on road titanium turnbuckles,
8. Tekin BC 210 reflex charger,
9. Jammin' RC10 diff kit,
10. Competition Electronics turbo matcher,
11. MIP's new style RC10 diffs,
12. Cheetah RC10 lowering kits.

**ASK YOUR HOBBY SHOP TO
CALL..... (914)268-5090**

LETTERS

(Continued from page 21)

but the track may not have been helped enough even if drivers had taken the time to try. I hope that the next IFMAR Off-Road Worlds will be run on a track that's well-maintained.

The tire size didn't seem to be as much in question as the out-of-scale wheel on

which it was mounted. The 2.25-inch wheel would be a 22.5-inch-diameter rim on a full-scale car. Where does it stop? Will somebody have a 2.5-inch rim at the 1991 Worlds, or will IFMAR make sure the cars remain 1/10-scale?

True, we neglected to say that you also supplied motors to Team Schumacher, but we did attempt to tell the whole story, and certainly didn't mean to mislead our read-

ers. For example, we're the only publication that I've seen that clearly identified the winning 2WD car as an Associated prototype, not an RC10.

Rick didn't quote you as having said, "the spirit of the rules wasn't compromised," although, according to him, you were the direct source of that specific terminology. Perhaps this was one of

(Continued on page 117)

K/N RC SPEEDWAY



Located at the Stafford Motor Speedway, P.O. Box 36, Stafford Springs, CT 06076. 203-684-9896

Autographics • Airtronics • AJ's
• Andy's • Associated • Advanced Engineering • Dan's
• Advanced RacingTech • Composite Craft • Bad Dog
Bolink • Bud's • CAM • CRP • DuBro • Futaba • Hayes
Imex • JG Mfg. • Kimbrough • Kyosho • Lazer Lite
Litespeed • Hyperdrive • Losi • McAllister • MRC • MRP
Novak • Parma • Pactra • Pro-Line • ProCut • Race Prep
RedLine • Robinson Racing • Schumacher • Shinwa
Tecnacraft • Tekin • Thorp • TMS • TRC • Trinity



Tues - Fri.....3 - 9 pm
Sat - Sun.....10 - 6 pm
Mon - Closed

Saturday Road-Course Racing, Sunday Oval and Weekday Races.
Call or write for complete race schedule.

Full support race shop. Manufacturers of the KN-Z plus Pan Car.

JG TRUCK CONVERSION



TEAM LOSI'S JR-X2 BECOMES A MONSTER

by WALLY DAVID

TEAM LOSI's* JR-X2 is one of the hottest off-road cars on the market. As the popularity of monster trucks continues to increase, conversion kits give you an easy way to transform your off-road car into a ground-pounding beast. JG Manufacturing* leads the way with some of the most complete conversion kits for the JR-X2, the Ultima, the RC10 and the Optima Mid.

THE KITS

JG has two kits for its monster-truck conversions: the Basic and the Complete.

- The Basic kit comes with JG's new direct, bolt-on, front and rear rims; front and rear monster-truck body mounts; body posts with foam spacers; and all the necessary hardware.
- The Complete kit comes with the aforementioned parts as well as monster-truck tires and a clear, Ford pickup truck body.

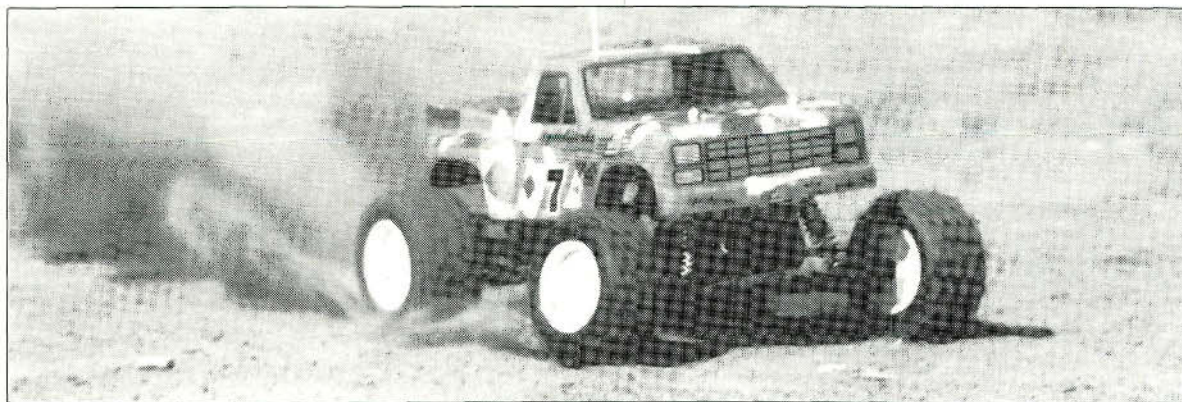
I chose the Complete kit for my JR-X2.

THE TRANSFORMATION

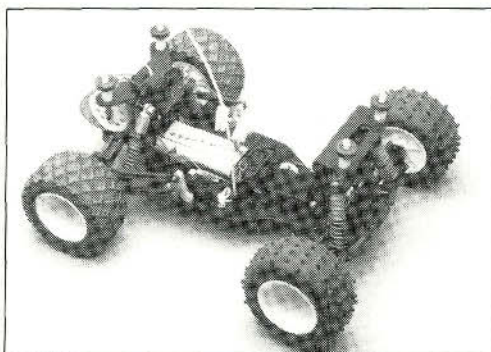
Every time I start a conversion project, I vow that *this* time will be different; that I won't change anything *except* the parts that come in the conversion kit. But every time, I come up with all sorts of conversion doo-dads that eventually make it impossible to recognize the original vehicle. This project uses direct-replacement parts that need no modifications, and I was pretty good on this one: I didn't go *too* crazy!

The first area of attack was the front end. In off-road racing, the current theory calls for long front shocks and shock towers. Team Losi provides a long front-shock tower that lets you mount long shocks on the front of the car. Longer shocks provide more suspension travel up front, and this lets the car (or truck) handle jumps more effectively. To make the front end even better than it is already, I replaced the front A-arms with Andy's* arms; they're lighter and slightly longer than the stock arms.

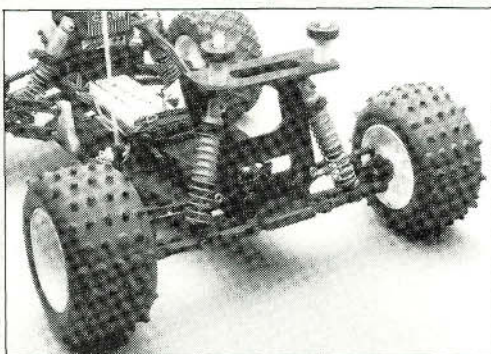
Robinson Racing Products* offers an inclined king-



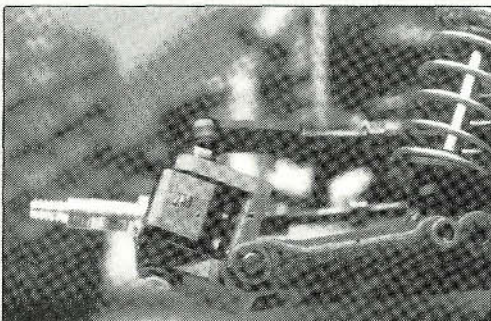
This shot shows the completed package. The JR-X2's spacious chassis keeps everything neatly arranged.



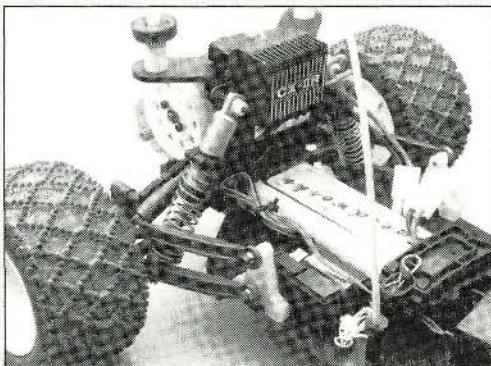
The front end of the conversion features: long shocks and shock tower; Andy's A-arms; and the JG body mount, posts and pads.



The angle of the Robinson kingpin puts the wheel's pivot point under the tire.



The rear of this beast was beefed-up with fiberglass suspension bulkheads from Robinson. A KO Propo radio with a CX-IIR speed controller provided guidance, and power comes from a Speedworks 1300mAh sport pack.



pin/caster-block/axle system, which puts the front wheel's pivot point under the tire. This makes monster trucks track straighter and remain stable over big jumps; and it also reduces bump-steer, or the car's tendency to turn left or right when one wheel takes the force of a jump. The system comes with a 30-degree caster block to help the truck track straight. A 20-degree block is also available, and the system is made for the RC10 and the Ultima, too.

Don't be worried if the steering assembly looks a little funky! I wasn't sure if I'd done it right until the truck hit the dirt. Robinson Racing should improve its instruction sheets: a more informative picture or diagram would be helpful.

The first step with the JG kit is the installation of the front body mount and the body posts. The body mount has three sets of holes, which are used to attach it to the shock tower. The instructions recommend that you use the holes at the bottom of the mount, but this makes the body sit too high for my taste, so I used the top set.

The front body posts are installed next, and I used the short screws without any spacers. To keep the center of gravity down, I aimed to keep the body as close to the chassis as possible.

ONWARD AND BACKWARD

Next, I turned my attention to the rear of the vehicle: I replaced the stock suspension bulkheads. The stock units can flex under load, and to withstand the abuse I intended to dish out, I thought it needed the thick, beefy fiberglass bulkheads made by Robinson. You'll have to use a 4-40 tap to thread the holes; I found it impossible to get the screws in otherwise.

The rear body mount is installed with screws that replace the stock ones; these go through the body mount and the rear shock tower and attach the top of the shocks to the tower. For the body posts, I again used the short screws and no spacers. Don't worry that the rear posts are lower than the front: the truck bed of the Ford body is lower than the hood.

TOPPING IT ALL OFF

To finish the project—from JG's standpoint, anyway—mount the monster truck tires to the rims. It's a tight fit, so CA isn't really necessary. The wheels mount directly on the stock axles and require no special adapters or bearings—yeah! The spiked tires go up front, and the diamond-shaped, mini-pin tires are mounted on the rear.



I wanted to do something wild with the paint job, and (unlike "Bad Brain" O'Brien) I like the things they do in California, so I designed a paint scheme based on a shirt I once owned and something I'd seen on the West Coast.

It's very simple—really! I cut small pieces of masking tape into squares of various sizes and put them all over the inside of the body. I then tore off larger pieces of tape and stuck them over the small squares.

First, I sprayed on a base coat of Pactra* orange. When it was dry, I peeled off the large pieces of tape and sprayed the body with white. When the white was dry, I peeled off some of the small squares, sprayed on yellow and allowed *that* to dry. I followed this procedure until all the squares had been painted with different colors. That's all there is to it! I like it—and, anyway, who cares what O'Brien says?

UP AND RUNNING

To get this beast going, I used a KO Propo* EX-7 radio with a CX-IIR reversing speed control, a Speedworks* 1300mAh sport pack and a Speedworks Monster Mash modified motor. Since I hadn't run a conversion truck before, I had to guess about the gear selection, and I decided on a huge, 93-tooth, 48-pitch spur and adapter, and a 12-tooth pinion from Robinson. (You'll need the gear adapter if you want to run any gears other than those made by Team Losi.)

Well, running R/C vehicles in beautiful New England is next to impossible in the winter, so I had to send my beloved new truck to Florida for a photo and test session with Commander Steve Pond.

He was happy to report that the truck ran fast, jumped well and was a lot of fun to run. (If Steve is impressed, then *you know* it must be good!) Its only problem was a tendency to push, and this can be traced to the small wheel I'd used on the servo. I'm sure that a longer servo horn would cure this problem by giving more throw.

I can't wait for the spring thaw so that I can run it myself; for now, however, I'll just have to live with the pictures!

**Here are the addresses of the companies mentioned in this article:*

Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766.

JG Manufacturing, P.O. Box 6014, Whittier, CA 90609.

Andy's R/C Products, 466 W. Arrow Hwy., Unit K, San Dimas, CA 91773.

Robinson Racing Products, 165 N. Malena Dr., Orange, CA 92669.

Pactra Coatings, 1000 Lake Rd., Medina, OH 44256.

KO Propo/Global Hobbies, 10725 Ellis Ave., Fountain Valley, CA 92728.

Speedworks; division of Trinity, 1901 E. Linden Ave., #8, Linden, NJ 07036. ■

WE GET AROUND

McAllister

LUMINA

If you've noticed our bodies in a lot of National oval events results, it's because a lot of top racers use our T-Bird, Lumina, Pontiac & Olds bodies for Stock Car Racing. We also have an ASA Firebird, and Camaro, plus a great line of Dirt Oval bodies. If you like our bodies you'll love our 1/10 scale car kit called the "Outlaw". Send \$2.00 for our complete catalog of RC goodies. McAllister Racing, 2245 First St., Unit 105, Simi Valley, CA 93065

LETTERS

(Continued from page 110)

those things that's said in the "heat of racing," though I don't think that statement requires any apology.

Keep in touch, and let us know if there's any progress on the rules changes you hope IFMAR will make before the next Worlds. Congratulations on sweeping the Off-Road Worlds in 1989. RH

SASE Enclosed

A couple of months ago, my dad and I sent you pictures of our project Clod Buster. We enclosed a self-addressed, stamped envelope so you could send back the unused pictures. I was wondering if you ever received them. We sent them to you and hoped that you would put them in "Readers' Rides."

I've seen some pretty nice vehicles and some pretty sorry ones in your magazine. My friends and I think that it's pretty messed up that you would put the "le-gomobile" in there and not our truck. If you're not going to use our pictures, please send them back.

JIMMY MATTES
Palmdale, CA

(Continued on page 119)

THE BATTERY STORE



The next time you buy a NiCad battery pack, come to the power source for

- HEAVY DUTY WELDED TAB CONSTRUCTION • COMPUTER MATCHED CELLS
- TEST CERTIFICATION PRINTOUT WITH EACH PACK • 1 YEAR WARRANTY
- PREMIUM TESTED SANYO CELLS

Periphex is a leading manufacturer of the highest quality battery packs used in life support applications by police, fire and EMS personnel. Now this same quality and dedication to life support is available to you for your RC equipment. We are the battery specialists. Why trust the life and performance of your model to anyone else? Periphex assembles all battery packs. We offer the ability to configure custom packs at reasonable prices. Full lines of Gel-Cells, NiCad and Alkaline Cells also available.

Quick Charge NiCad Cells	
AA 600ma.....	\$2.20 ea*
Sub C 1300ma.....	\$3.70 ea*
Sub C 1700ma.....	\$6.00 ea*

Receiver/Transmitter Packs	
4.8v 600ma.....	\$12.00*
4.8v 900ma.....	\$18.00*
4.8v 1300ma.....	\$22.00*

Matched Rapid Charge Race Packs	
6 cell 1300SC.....	\$30.00*
6 cell 1200SCR.....	\$35.00*
6 cell 1700SCE.....	\$40.00*
7 cell 1300SC.....	\$35.00*
7 cell 1200SCR.....	\$40.00*
7 cell 1700SCE.....	\$47.00*

1200SCK, 1500SCR and 1700SCR packs available in any configuration.

*ADD \$4.00 S&H UP TO 4 CELLS OR FIRST PACK, \$1.00 FOR EACH ADDITIONAL 4 CELLS OR PACK.

The true value of any battery system is determined by service, performance and dependability. Make Periphex your power source. Nobody has a better battery or offers a better value. Send \$1.00 for our complete catalog. Dealer inquiries invited.



PERIPHEX inc.

149 Palmer Road, Dept. M, Southbury, CT 06488
(800) 634-8132 • In CT (203) 264-3985 Ext. 63 • FAX (203) 262-6943

WE'RE NOT JUST GOING IN CIRCLES

When you start making those right hand turns, go in style with our 1/10 Nissan GTP, Jaguar GTP or Toyota GTP bodies. We also have the Protofab Camaro, the awesome new Nissan 300 Z for the GTO class, and the Penske Indy car. If you want to be a front runner get your hands on our 1/10 "Outlaw" car kit. Don't settle for less. Send \$2.00 for our complete catalog.

McAllister Racing, 2245 First St., Unit 105, Simi Valley, CA 93065

BRIGHT NEON COLORS!

BRIGHT NEON COLORS!



RCW01



RCW02



RCW03



RCW04



RCW05



RCW06



RCW07

Please send me my new NEON design(s). I have enclosed
\$14.00 per T-shirt or \$21.00 per sweatshirt (Includes postage and handling)
Payable in U.S. funds, NO C.O.D.'s

DEALERS! Now you can order
these shirts with your
store/company logo in the
back or sleeve! Send for info.

Name _____

Address _____

City _____ State _____ Zip _____

Visa - Mastercard Acct. # _____ Exp. _____

Signature _____

BRIGHT NEON COLORS
On top quality 50/50 white shirts.

Quantity	Design	S	M	L	XL	Amount

Ohio residents add 5.75% tax

Total \$ _____

Send check or money order to: **GARBART** P.O. BOX 487 Hilliard, Ohio 43026

Please allow 4 weeks for delivery

BRIGHT NEON COLORS! BRIGHT NEON COLORS! BRIGHT NEON COLORS!

LETTERS

(Continued from page 117)

Jimmy, I don't remember seeing your "Readers' Rides" entry, so I can't comment on its looks. I don't think it's fair to say that a particular car is "sorry," when someone spent time preparing it. Obviously, I liked it! Don't you think that you and your friends might be somewhat biased, anyway?

It takes a while to open the volumes of mail that we receive, and sometimes I don't even see the self-addressed, stamped envelopes. I frequently just pluck out the picture to see if it's something we want to consider. Therefore, make sure that you make copies of the prints before you send them. If I see the SASE, I'll return the photos, but I can't guarantee anything!

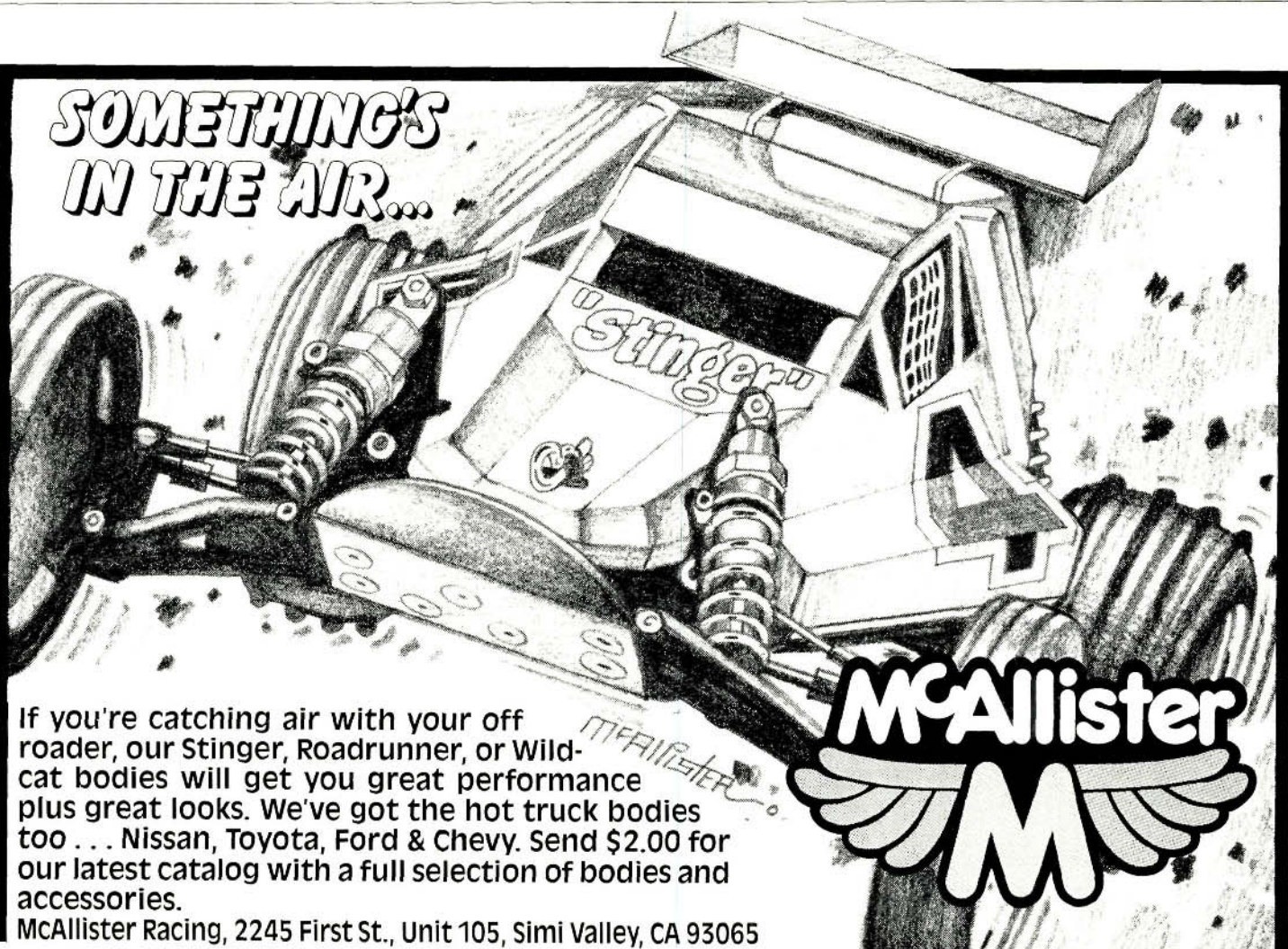
WD

Say It Ain't So

First, I have to compliment you on your totally awesome mag. You blow away all those other phony magazines that try to compete with you. I'm 13 and I own a Tamiya Blackfoot. I've put on lots of modifications already. I really want to put on bigger tires (like the ones on the Clod Buster) so I can plow through snow and

(Continued on page 121)

SOMETHING'S IN THE AIR...



If you're catching air with your off roader, our Stinger, Roadrunner, or Wildcat bodies will get you great performance plus great looks. We've got the hot truck bodies too . . . Nissan, Toyota, Ford & Chevy. Send \$2.00 for our latest catalog with a full selection of bodies and accessories.

McAllister Racing, 2245 First St., Unit 105, Simi Valley, CA 93065



★ ISLAND HOBBIES & RACEWAY ★

111 BRIDGE ROAD • HAUPPAUGE, NY 11788 • (516) 234-7428 • 1-800-344-9225 (Orders Only)

Did Somebody Say... PARTS?

...Well, we've got 'em! Island Hobbies & Raceway handles all your R/C needs. Specializing in hard-to-find parts for Marui, Kyosho and MRP, as well as R/C boats and Estes Rockets & supplies, we're the ONLY store for you! And we still beat most advertised catalog prices! If you're in our neighborhood, stop in and use our 310-ft. indoor carpeted racing track—or just sign-up for our weekly racing program! Membership is only \$25. per year & entitles you to 10% off parts and 1/2-price race entry fees. We'll keep you on the track and in the winner's circle.

YES! We still have parts left for the Varicom Big Grizzly, but hurry, they're going fast!

CHECK OUT THESE LOW, EVERYDAY PRICES FROM ISLAND HOBBIES & RACEWAY:

RC10 w/bearings	189.95
without bearings	149.95
RC10 Graph. w/bearings	199.95
without bearings	154.95
JRX2	169.95
MRP Miss Budweiser Deluxe	169.95

Futaba Magnum Sport	84.95
w/Elec. Speed Control	111.95
Magnum Jr.	114.95
w/Elec. Speed Control	129.95
Deans 4-Prong Connectors (set)	1.95
RC10 Tit. Dog Bones (ea.)	10.95

Take off 1/4 oz. where it counts!

**New and Improved Assoc. 10L
Mag. Wheel Hubs Back In Stock!**

Full Set (left & right)	28.00
Left Hub	14.95
Right Hub	16.95

Varicom Big Grizzly • Marui • MRP • Tamiya • Kyosho • TRC • Associated • BoLink • Parma • C&M Cobra • JG • Trinity • Andy's • Traxxas • CRP • Thorp
Futaba • Five Star • Pro Tech • Pro-Line • Robinson Racing • MIP • Cheetah • Kimbrough • Universal Energy • Aristo Craft • Buds • Team Losi • And Much More!

LETTERS

(Continued from page 119)

mud without getting stuck. My local hobby shop said I couldn't put Clod Buster tires on my Blackfoot. Is there any way I can put monster tires on my monster truck?

MATT BOBER
Orland Park, IL

Matt, your letter is like many we receive asking about modifications for cars and trucks. Too often, hobby shop employees don't know the answer, so they just say it can't be done or the part doesn't exist! (Yours is a case in point.)

I checked with Advance Engineering and Bru-Line, and they both produce wheels, adapters and spacers for wheel modifications. Yes, you can put Clod

Buster tires on your Blackfoot.

WD

We're Not Out Of Date!

I read every one of your magazines about 12 times. I love them, and I don't know what I'd do without them. (I'm certainly addicted!)

In your January '90 issue, "Inside Scoop" shows a new 2WD Tamiya As-

(Continued on page 122)



**CRUISE'N
R/C
STYLE**

McAllister

When you're tired of all the race results and you want to get down to some serious "Lookers," cruise the block with our "Street Rod Coupe" body, or our '70 Barracuda. We've got a great street Vette, California Mini Pickups, and a great line of decals for your street machine. Just mail \$2.00 and we'll ship you our latest catalog.

McAllister Racing, 2245 First St., Unit 105, Simi Valley, CA 93065

LETTERS

(Continued from page 121)

tute. Two days after I read the article, I saw the Astute for sale as a kit in my hobby shop. Are you out of date? You'll have to fill me in on this one.

RYAN O'NELL
Old Saybrook, CT

Ryan, we tell you about things as soon as we hear about them! The problem is, we don't always know when a product will be imported or made available to the public. You'll usually see it here first so that you'll know to look for it in the stores. Because of the scope and quality of our magazine, we operate on a three-month lead time! It may take a while for things to show up sometimes, but if we were to rush the magazine, it would look like the others out there, and we don't need that! Besides, just think how frustrating it would be if we told you about a new car six months before it was available. WD

Illegal Immigrant

I'm writing in response to your statement in the February '90 issue that the Optima Mid Custom isn't sold in the United States. You're mistaken. Some hobby

shops are carrying the Mid Custom. My local hobby shop has one sitting on its shelves. I thought you might be interested in this fact.

JERROD WIESMAN
Felton, PA

Jerrod, when I said that the Optima Mid Custom wasn't available in the U.S., I was correct. It's not being imported by Great Planes, and they have exclusive rights to import the Kyosho line in the U.S. The hobby shop that you saw it in didn't get it through Kyosho, and it's in danger of prosecution. It's one thing for a consumer to travel out of the country and purchase products not available here, but when a retailer sells them, that's another matter.

WD

We welcome your comments and suggestions. Letters should be addressed to "Letters," Radio Control Car Action, 251 Danbury Road, Wilton, CT 06897. Letters may be edited for clarity and brevity. We regret that, due to the tremendous number of letters we receive, we cannot respond to every one.



MAXIMUM CLOD

(Continued from page 32)

CHROME PLASTIQUE

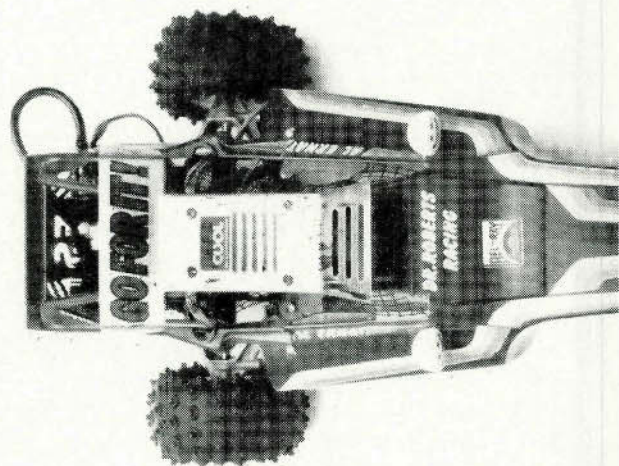
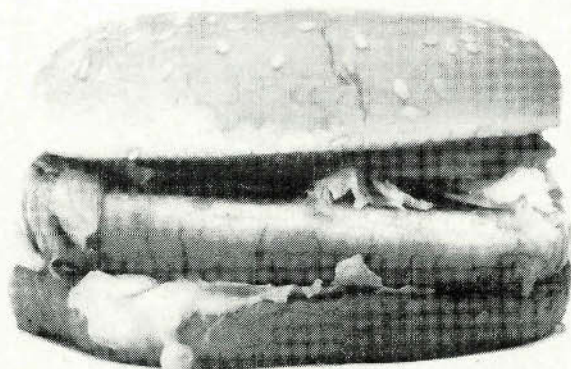
No truck is complete without lots of chrome, and even though the aluminum stuff has a nice sheen, it isn't chrome. I came across an ad for Custom Chrome Parts Mfg.* and started to drool. CCPM takes stock Clod bits and chrome-plates them—and does that stuff shine!

I bought chrome-plated gearboxes, ladder bars, wheel hubs and rod ends. I could have gone on forever, because CCPM has also chromed almost every other Clod part, including the chassis! You should realize, however, that the plating process adds a layer of chromium to the item; this means that you might have to ream the mounting holes slightly and scrape the inside of the rods ends so they'll pivot correctly. Also, if you rub one of the parts hard enough against something, the plating can flake off. After all, the original Tamiya parts are only flexible plastic; CCPM has done the best that it can.

The worst thing about chrome is that the more you have, the more time you'll

(Continued on page 124)

ALL YOU NEED...





SASSY CHASSIS

NEW! NEW! NEW!
ALUMINUM
CLODBUSTER CHASSIS
\$99.95

SASSY STEERING \$19.95
 We have two new adjustable rate bellcrank and balanced bellcrank steering systems. Our balanced system allows you to place your servo in the center of the car where it belongs.

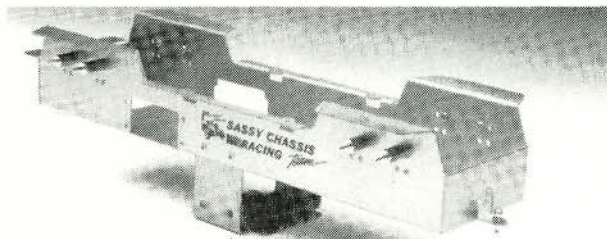
DELUXE ALUMINUM GEAR TRAY \$9.95
 15 hardened steel pins hold your 32-, 48- or 64-pitch gears safely and securely.

MOTOR COOLER/SPACER \$3.95
 Cools your motor to help it run stronger and longer and only weighs 1/14 ounce.

RADIO CHARGER ADAPTOR PLUG \$5.95

Now you can charge the Ni-Cad batteries in your transmitter without removing them.

SUPER DIFF BALLS \$6.95/Bag of 100



PAN CAR MOTOR POD \$34.95
 FITS BOLINK ELIMINATOR 10. TAKES OVER 1/2 OUNCE OFF CAR. WITH BUILT-IN HEAT SINK AND ADJUSTABLE AXLE SLOT.

PAN CAR MOTOR POD \$34.95
 SAME AS ABOVE, BUT FITS TRC PRO 10.

REVERSE MOTOR POD \$34.95
 FOR HYPERDRIVE.

COMPETITION

ALUMINUM CHASSIS PLATES

AIRCRAFT ALUMINUM . . . GUARANTEED NOT TO BEND UNDER NORMAL RACING CONDITIONS (OR WE'LL REPLACE IT!) . . . AFFORDABLY PRICED FROM \$39.95.

WE HAVE A CHASSIS TO FIT YOUR:

RC10 \$39.95
 (3 different versions for your racing needs)
 ASCOT BIG BOY SPRINT \$39.95
 BOLINK ELIMINATOR 10 \$39.95
 KYOSHO MID OPTIMA \$39.95
 KYOSHO ULTIMA \$39.95
 SCHUMACHER CAT XLS \$39.95
 TAMIYA 4-WD \$49.95
 (Supershot, BigWig, Boomerang, Super Sabre, Hot Shot I&II)
 TAMIYA FOX \$59.95
 ASSOC. YZ-10

UPPER AND LOWER \$44.95
 LOSI JRX-2 STRETCH \$39.95

Ask your local hobby dealer for Sassy Chassis or send a self-addressed stamped envelope to receive our free catalog.

SASSY CHASSIS

204 S. Oak Street
 Itasca, IL 60143
 708/773-2381

MAXIMUM CLOD

(Continued from page 122)

spend polishing it, but you'll also be able to tell who's been touching your Clod by matching the fingerprints!

GO POWER

All show and no go would never be ac-

ceptable, so locomotion was the final priority. To accomplish the most on that front, I turned to Black Magic motors from R/C Research*. You can get them for pulling or for speed, and I've used them successfully in my dragster. The Clod versions come in both normal and reverse rotation, and they hold up well

under a couple of extra batteries, as long as you don't get outrageous.

I couldn't neglect the gearboxes, so I went to Stormer Racing* for 4:1 reduction units. With full ball bearings, the standard gearing they supply gave me a 120:1 final drive ratio. With the motors and

(Continued on page 126)



3 National Titles

THE AGONY OF VICTORY

Preparing for a race can be a pain. Winning a race feels pretty good. VRP, Verona Racing Products, can help shorten the time it takes to prepare your R/C cars and just as important our products help prolong the life of your cars and their parts.

Look for Lubrispray, Lubritooth, Lubridiff and Lubribearing. The VRP Lubrisystem, packaged in bright pink, blue and black at your hobby shop. Use the VRP Lubrisystem and get prepared . . . to win.



verona racing products

4555 Groves Rd. #15 • Columbus, Ohio 43232
 Available at your local hobby shop or call
 800-783-4VRP • M-F 9-5 EST

SASE for Brochure and Tech Tips
 add \$2 for decals,
 add \$10 for T-shirt (size)

Advice For Car Modelers: Ram It!

#RED 04	Mars Light - rotating beacon	\$19.95
#RED 19	Car Headlights, 7.2 - 9 volt	10.95
#RED 20	Car Tail & Stop Lights - 9 volt	19.95
#RED 21	Car Turn Lights - Automatic operation	29.95
#RED 23	Real Strobe Light (Xenon) - 3 volt	29.95
#RED 24	RAM Lites - Off road, all aluminum	14.95
#RED 28	RAM Lites w/mounts for Tamiya Roll Bar	19.95
#RED 29	RAM Lites w/fold-away Roll Bar	24.95
#RED 31	3 Way Simple Siren - 3 sounds	19.95
#RED 32	Battery Peak Detector - 4-8 cells	29.95
#RED 37	Simple Servo Setter - adjustable fail safe	19.95
#RED 38	Gas/Diesel Engine Sound & Horn, 4" Speaker	39.95
#RED 39	VW Car Engine Sound & Horn, 2" Speaker	24.95
#RED 40	Gas/Diesel Engine Sound & Horn, 2" Speaker	39.95
#RED 43	Corner Marshall Alarm - the race winner	10.95
#RED 46	Machine Gun Sound Module	29.95

LIGHTS - Ram It!

SOUNDS - Ram It!

FAIL SAFES - Ram It!

• SEE YOUR DEALER • SEND STAMPED ENVELOPE FOR RAM INFO

If unavailable locally send check, money order or full credit card info for the cost of the item plus \$2.00 (\$5.00 foreign) for immediate shipment. Include full address for U.P.S. Sorry no C.O.D.

Ram 4736 N. Milwaukee Ave. — Chicago, IL 60630

MAXIMUM CLOD

(Continued from page 124)

reduction gears, the Clod doesn't just move—it jumps off the line! Unfortunately, top speed isn't an issue when you reduce the gearing; there isn't any. There's plenty of pulling and climbing power, though, and the amount of low-end torque is extraordinary. I had to revise my earlier dream of having a Clod as nimble as a wide receiver; I settled for a defensive tackle.

All the local stores were out of high-

capacity Clod batteries, so I picked up six Radio Shack high-capacity (4000mAh) D-cells and wired my own pack. Wrapped as two groups of three cells, they fit just fine in the fore and aft sections of the chassis.

Because I had decided to stay at the 6-cell level, I installed an Aristo-Craft* SP-150 ESC with reverse. Aristo-Craft claims that it's good for 150 amps continuous, and although the heat sinks get a little warm, it hasn't been a problem. Although I chose a 42-ounce/inch servo for steering, you really want 60 ounce/inches or

more for the massive Clod Buster. The 60s are nearly three times the price of the 40s, but the 40s do work, as long as you don't try to move the wheels when the truck isn't in motion (you'll only move the servo savers).

A few years ago, I had the foresight to buy an Aristo-Craft 3PX 3-channel pistol radio. The third channel is independent (not mixed, like it is on the Futaba 3-channel of late). It gives me tilt action for the front end at the turn of a knob.

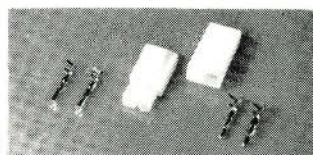
(Continued on page 151)

TOP SPEED

GUARANTEED!

Deliver an extraordinary amount of energy to your motor.

REPLACE YOUR LOW-PERFORMANCE STOCK CONNECTORS WITH THE ULTIMATE GOLD!



COBRA
"HOT-RODS"
PREMIUM GOLD CONNECTORS

ONLY \$1.99
MODEL C1003/UNASSEMBLED
MALE & FEMALE HOUSING
WITH GOLD PINS

• PREMIUM GOLD FINISH • COMPATIBLE WITH STOCK CONNECTORS • ULTRA LOW LOSS
Stock connectors deteriorate rapidly, resulting in diminished performance. Gold connectors offer minimal loss and substantially increase connector life. Stop wasting energy and upgrade to Hot-Rods today.

C1001 HOT RODS KIT: Assembled with 230M 16AGW wire. \$2.79

C1005 BATTERY UPGRADE KIT for 6 Tamiya batteries to gold standard. \$5.00.

Includes extractor tool.

C1006 BATTERY UPGRADE KIT for Kyosho. \$5.00



COBRA
"BATTERY-BUG"

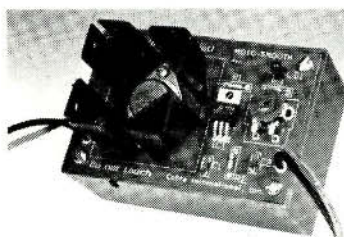
ONLY \$4.00 EACH

\$18.00 BAG OF 5 MODEL E1047.

THREE-STAGE DESIGN: • INITIAL DISCHARGE STAGE • BATTERY-BALANCING STAGE • STORAGE MODE WITH ELECTRONIC SHUTDOWN AT .9 TO 1.5 VOLTS.

Balanced cells recharge with less heat and virtually eliminate false peaking. There's no chance of damage due to excessive and total discharge, and the batteries won't reverse, as with discharge resistors or light bulbs.

RESTORE YOUR MOTOR TO NEAR FACTORY PERFORMANCE!



COBRA
"MOTO-SMOOTH"
ELECTRONIC MOTOR RECONDITIONER

ONLY \$34.95
MODEL E1049

• BREAK-IN NEW MOTOR OR BRUSHES
• RECONDITIONS AND POLISHES AFTER RUNNING.

Condition your motor with Moto-Smooth after each use to maintain peak performance. Never race a brand new motor until you condition it first with Moto-Smooth. Break-in replacement brushes. Moto-Smooth polishes while it cleanses your commutator and brushes. Fully adjustable for all applications.

ORDER TODAY!



Dept. CA 12
2415 Lafayette Blvd.
Norfolk, VA 23509
(804) 855-0202

CALL **800-234-3111** (ORDERS ONLY)
804-855-0202 (CUSTOMER SERVICE &
DEALER INQUIRIES)

Shipping and handling \$3.00; C.O.D. add \$2.90 to shipping and handling.

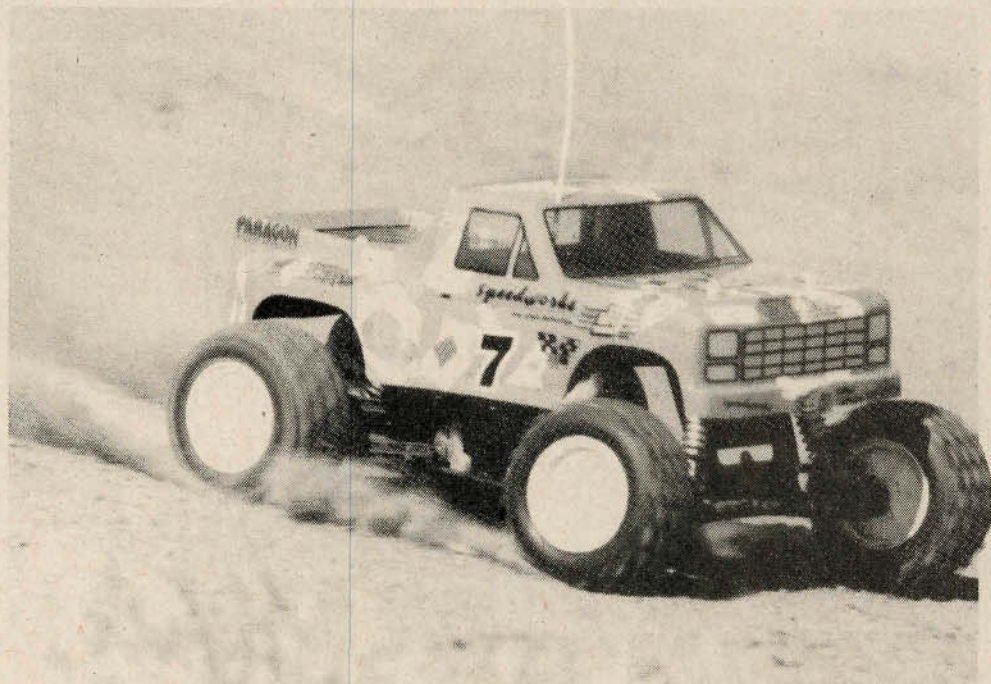
MONSTER TRUCK BUYERS' GUIDE

THE Monster Truck market has exploded over the past two years and, frankly, it's a little mind-boggling!

With many new and established companies introducing products aimed at the monster-truck enthusiast, it's hard to keep track of what's out there.

This guide to the trucks and accessories available at hobby shops should help you find what you need, whether you want to build a truck from a kit or from scratch, or to convert an existing off-roader. If you're into pulling, you'll find lots of things to help you rip up the carpet!

With all the hop-up parts, appearance-enhancers and other goodies, your truck can go fast, look good—anything you want!



TRUCKS

ADVANCE ENGINEERING



Full Pull 1

This new competition pulling truck from Advance has gear ratios from 40:1 to 300:1. The kit is a complete rolling chassis with full ball bearings, precision steel gears and a massive machined-aluminum rear end. Also included are front and rear aluminum Mini-Mags, tires and a body.

Part no. 331000.

Price: \$395.95.

ARISTO-CRAFT

NEW!



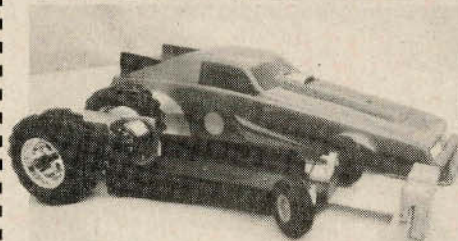
Wildebess

The Wildebess is a fully assembled, 1/10-scale, chain-driven 4WD truck. Its ABS body rides high above giant spiked tires, and a Challenger 250 radio and mechanical speed control are already installed. You only need a battery pack to get the Wildebess on the road.

Part no. AR101904.

Price: \$199.95.

BENNETT EQUIPMENT



Pro Puller I

The Pro Puller I rolling chassis features a polished-aluminum gearbox; Oilite bushings; gear ratios from 16:1 to 64:1; solid pulling hitch; aluminum final-drive gear; and 2x4-inch pulling tires on a 12-inch standard wheelbase. A molded chassis with metal stiffener and weight bracket are also standard. The motor and body shown are optional.

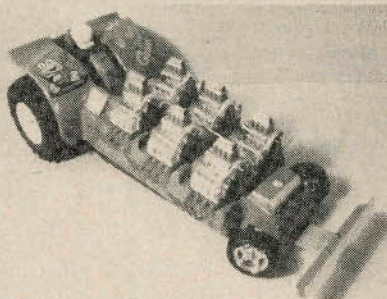
Part no. Pro 1.

Price: \$199.95.

TRUCKS



BENNETT EQUIPMENT



Pro Puller II

The Pro Puller II rolling chassis has already established itself in tractor/truck pulling all over the country. It includes a molded chassis with a metal stiffener and a front weight bracket, easy-to-change gear ratios, a polished-aluminum gearbox, an aluminum final-drive gear, a 1/4-inch steel rear axle, 3x5 1/2-inch rear pulling tires, sturdy front tires and front assembly. Oilite bushings and a pulling hitch are standard; ball bearings, a hex-drive axle and an adjustable hitch are optional.

Part no. Pro II

Price: \$239.95 (without body); \$299.95 (with body).

KYOSHO

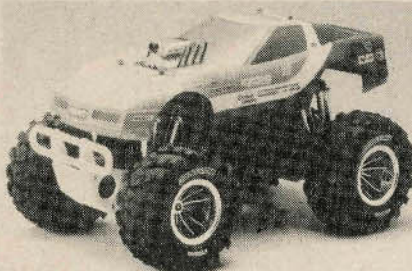


Double Dare

The Double Dare has two LeMans Stock 05 high-torque motors, huge 5.7-inch tires, 4WS and dual differentials. The rugged ABS chassis supports independent suspension and two friction-type shock absorbers for each wheel. A new, "rotary," custom speed control is included.

Part no. KC1660

Price: \$234.95



Hi-Rider Corvette

The American "dream machine," the Hi-Rider Vette has many of the high-quality features that have made the Big Brute such a hit: rugged ABS plastic chassis; enclosed gearbox; 4W, independent, double-wishbone suspension; and a powerful LeMans Stock 05 motor. This 1/10-scale, 2WD electric car-crusher also includes Kyosho's Heavy-Duty Rotary Speed Control; twin, chromed truck shocks at each wheel; and huge 5.7-inch-diameter, 2.9-inch-wide truck tires.

Part no. KYOC0230

Price: \$179.95



Big Boss

Kyosho unveils its new 1/10-scale monster car crusher—the Big Boss. Based on the Big Brute chassis, the Big Boss is compatible with all existing hop-up parts and now comes with metal bushings instead of the usual nylon ones.

With a body style that's truly American, the Big Boss is a realistically detailed Ford F-250 that's accentuated by chromed rims, a grill front bumper and a V8 engine.

The exceptionally strong chassis and tough, glass-filled, nylon parts make the Big Boss one of the most durable trucks available. A LeMans Stock 05 motor and heavy-duty, 3-step-forward/1-step-reverse speed control are included.

Part no. KYOC0225

Price: \$219.95



Big Brute

This 1/10-scale monster truck has a rugged fully sealed ABS chassis; huge 5.4-inch truck tires; front and rear double-wishbone suspension; and four oversize Kyosho truck shocks. The Big Brute is 18.1 inches long, 12.2 inches wide and 11.25 inches high. A LeMans Stock 05 motor supplies the power, and a 2-channel radio, 6- or 7-cell battery and charger are required.

Part no. KYOC0220

Price: \$169.95



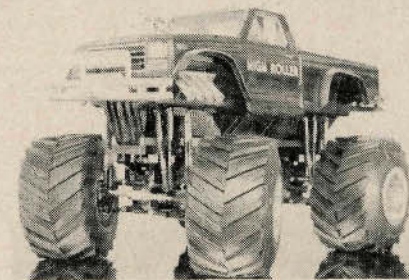
Nitro Brute

The Nitro Brute is designed to give even more exciting performance than the Big Brute with a .12 CZ-2 engine. It requires a 2-channel radio, and the muffler is included.

Part no. KYOC0418

Price: \$249.98

MRP



High Roller

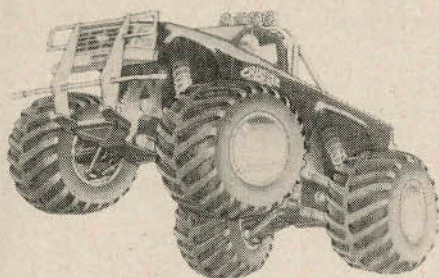
The High Roller has huge tires (over 6 inches high and 3 1/2 inches wide), front and rear independent suspension, and four shocks per axle (16 total). With a 3-channel radio, you can shift from FWS to 4W-opposed or 4W-carb steering. The motor, which sits inside the tub chassis, drives a

central transfer case that transfers the power to the front and rear gear cases for full-time 4WD. Included are anodized chassis rails and ladder bars, chrome-plated bumpers, high-rise carbs, headers, deep-dish rims and a roll cage.

Part no. 61-6300

Price: \$379.95

ROYAL PRODUCTS



Royal Crusher

The Royal Crusher is a 2WD, 4WS, big-wheel truck that can be converted to 4WD. It comes with a chrome roll bar, bush guard and rims. It has deep-travel independent suspension, a sealed-differential gear transmission and a polycarbonate Ford F-150 body. It requires a 2-channel BEC radio and 7.2V flat battery pack.

Part no. 79-424

Price: \$109.95

TAMIYA



Blackfoot

The Tamiya Blackfoot has large, one-piece wheels and 5-inch tires; highly detailed, injection-molded body; sealed gearbox; front wishbone and rear trailing-arm suspension; 3-step-forward and 2-step-reverse speed control; shaft-mounted bearings; and 540 motor. It requires a 2-channel radio and a 6 or 7.2V battery pack.

Part no. RB858

Price: \$144.95



Monster Beetle

The Monster Beetle features a 540 motor; adjustable, oil-filled, coil-over shocks; an ABS resin space frame; front double-wishbone and rear trailing-arm suspension; oversize, spiked, semi-pneumatic tires; gold-finish wheels; a 3-step forward-and-reverse speed control; and a detailed injection-molded body. It requires a 2-channel radio and 7.2V battery.

Part no. RB860

Price: \$207.95



Mud Blaster

The Tamiya Mud Blaster has tractor pin-spoke tires, double-wishbone front suspension and rear trailing arms to provide a fully independent suspension ride with coil springs all around. Other features include a 540-type motor, a steering servo-saver, and a 3-step forward-and-reverse speed control equipped with a BEC connector. It requires a 7.2V battery and a 2-channel radio.

Part no. 58077

Price: \$184.95



Clod Buster

The Clod Buster is a ready-to-assemble R/C kit that has 4WD and 4WS; dual-mounted 540-type motors; front and rear suspension dampened by eight heavy-duty coil springs; front and rear sealed gearboxes with differentials; 165x110mm, monster-size, lug-

pattern tires; detailed, injection-molded body; ABS bathtub-type chassis; and 3-step forward-and-reverse speed control. It requires a 2-channel radio and a 7.2V battery.

Part no. RB865

Price: \$354.95



Lunch Box

The Lunch Box is a 1/12-scale Dodge monster van with a box-type resin frame/chassis; a sealed gearbox; independent swing-axle front suspension; coil-over dampeners; a 540-type motor; a 3-step forward-and-reverse speed control; 115mm-diameter tires; and a detailed injection-molded body.

Part no. RB863

Price: \$135.95

TRAXXAS



Sledgehammer

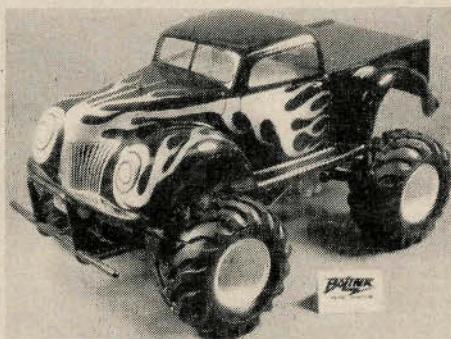
The Sledgehammer's features include 2WD; 4-wheel independent suspension supported by eight, high-volume, oil-filled, coil-over long shocks; T-6 aluminum chassis; and planetary differential. (The planetary-gear system is the same as that used on full-size monster trucks.) The body is an '89 Chevy Sportside with a chrome roll bar and drop-down rear bumper.

Part no. 1806 (assembled, radio included)

Price: \$320

BODIES

BOLINK



'40 Ford Pickup

This new classic from Bolink makes a beautiful show car. Transform your monster truck from just one of the bunch into something special.

Part no. BL-2353; BL-2353-P.
Price: \$18 clear; \$26 painted.

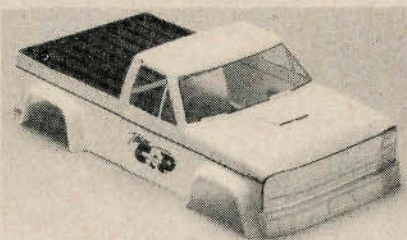


Pickup Body

The Chevy S-10 truck body from Bolink will fit almost any R/C car and is ideal for the Heavy-Metal Truck Class.

Part no. BL-2397
Price: \$18

CRP



Ford F-250 Truck Body

This Ford F-250 truck—CRP's entry into the ever-expanding body market—is included in the CRP deluxe Monster-Truck Conversion Kit, or available separately.

Part no. 6000
Price: \$20

DAHM'S RACING BODIES



Super Sport 454

The Super Sport 454 is designed to fit the Tamiya Blackfoot, the Optima Mid, and most other 1/10-scale monster trucks and cars. Its aggressive-looking design has fine details, a swept-back front end, a custom hood scoop with vents, a low sleek cab, a tailgate wing and smooth, wide wheel wells. The heavy-duty, clear Lexan, racing truck body comes with finishing instructions and a Dahm's sponsor sheet.

Part no. D125
Price: \$19.98

McALLISTER RACING



Chevy Sportside

This is "today's" R/C Chevy. The hottest new look in pickups makes the ultimate monster truck.



Mini Monsters

The Toyota and Nissan truck bodies from McAllister Racing are ideal for just about any 1/10-scale monster truck, as well as for 2WD and 4WD cars in the heavy-metal class. Molded individually for the most uniform thickness and durability, they'll mount to most chassis with the use of any popular body-mounting system.

MRP



MRP

Chevrolet Sportside Pickup

Heavy metal forever! A hot, new pickup for off-road racing or back-country sporting, the new Chevy Sportside is a variation on the old step-side theme. This distinctive body will fit the High Roller truck and any other 1/10 monster truck on the market, or your 2WD or 4WD off-road racer.

Part no. 30-1128
Price: \$19

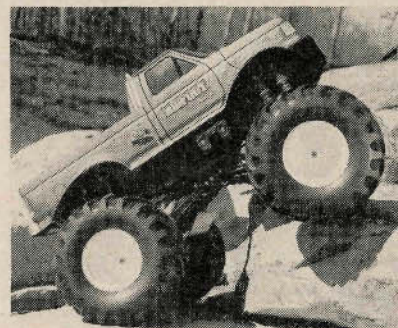


Ford Stepside Pickup

MRP's Ford Stepside pickup has a molded-in roll cage, brush guard and winch bar. It's ideal for the Heavy Metal Class.

Part no. 30-1118
Price: \$19

PARMA



'89 Ford Truck Body

The Parma Bigfoot 4x4 is "the original monster truck." This awesome '89 Ford truck body has the style and detail for which Parma is famous. Recreated in perfect 1/10 scale, it's designed to be a direct replacement for the Clod Buster and will fit many other trucks with the use of Parma body-mount kits.

Part no. 10293
Price: \$25



1988 Ford Bronco

New from Parma is the 1/10-scale 1988 Ford Bronco. Molded in clear Lexan, this detailed body of America's hottest-selling truck is sure to be a winner. Fits most 1/10-scale chassis.

Part no. 10260

Price: \$19



Clod Buster Replacement

Parma's new Clod Buster direct-replacement body is molded in clear Lexan. It's easy to paint and impact-resistant, with all the detail of the "kit" styrene body. This body will also fit other 1/10-scale cars and trucks.

Part no. 10270

Price: \$19



Ford F-150 Body

Parma's newest 1/10-scale Ford F-150 pickup is a direct-replacement body for the popular Tamiya Blackfoot. With the use of a Parma body-mounting kit, it will fit most other cars.

Price: \$19



Ford Ranger Body

Parma's new 1/10-scale Ford Ranger body goes well with Parma's no. 10608 Ford decal sheet, and it fits most 1/10-scale bodies with the use of Parma's body-mounting kit.

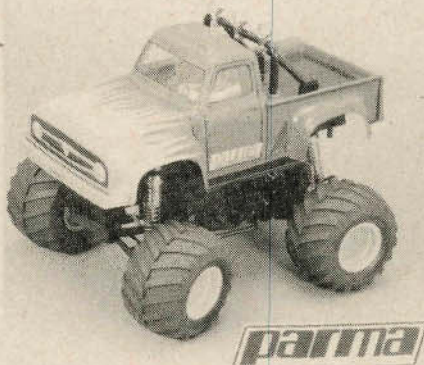
Price: \$19



Jeep Honcho Body

This ever-popular 1/10-scale truck body shows great attention to realistic detail. It will fit the Big Bear and Blackfoot if you use the body-mounting kit.

Price: \$19



Pumpkin Replacement

Parma's latest 1/10-scale truck body, the Midnight Pumpkin, is a direct replacement for the Tamiya car. It has all the detail of the styrene body, but it's molded in clear, easy-to-paint, crash-resistant Lexan. The Midnight Pumpkin body fits other cars and trucks, too.

Part no. 10272

Price: \$19



Stepside Body

Available in clear Lexan, Parma's Chevy Stepside body is a perfect replacement for the Tamiya Blackfoot and fits most other cars with the use of a Parma body-mounting kit. It's the perfect body for the new Heavy Metal Class.

Price: \$19



Volkswagen Beetle Body

The Volkswagen Beetle body from Parma is available in clear Lexan and designed as a replacement body for the Big Bear. It comes complete with mounts and instructions.

Price: \$19.95

PRO-LINE



Chevy Stadium Truck

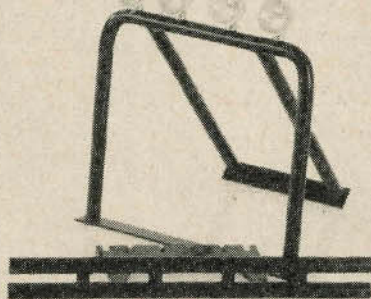
This wild-looking, clear Lexan, Chevy stadium truck has received many awards and positive reviews.

Part no. 3013

Price: \$19.95

ACCESSORIES

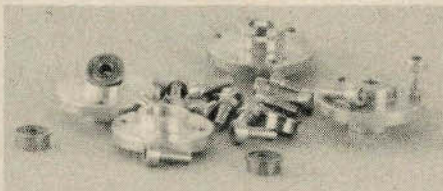
ADVANCE ENGINEERING



Bumpers and Roll Bars

Advance now offers a series of tubular-steel bumpers and roll bars for the Blackfoot and Clod Buster. They're direct replacements for the stock versions and are strong enough to take the roughest abuse. Both the bumpers and the roll bars are available in black or chrome-plated; the roll bars also come with or without working lights.

Price: from \$14.95

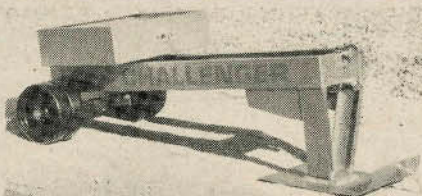


Universal System Hubs

Advance's Universal Wheel System is very versatile and allows you to mount Advance wheels on any popular car. It's the only wheel-mounting system that lets you switch quickly and easily from off-road to on-road to monster-truck wheels. Have more fun with your car than ever before!

Price: \$14.95

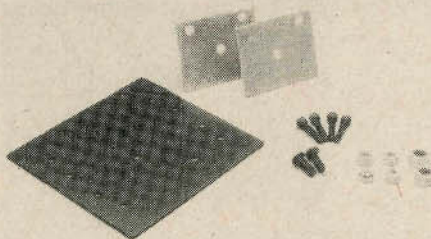
AJ'S R/C



Challenger Pulling Sled

The all-metal Challenger Pulling Sled from AJ's R/C has a weight capacity of more than 150 pounds! The mostly aluminum construction is very durable, but only weighs 9.5 pounds, so it's easy to transport. The Challenger comes fully assembled with heavy-duty bronze bushings supporting the steel axle, and it's geared for a 30-foot, regulation full-pull. It's also available with a heavy-duty hop-up kit that includes a steel cable, larger, stronger weight box and ball-bearing pulleys. The sled comes with an eye-catching, gold-and-black anodized finish. Your satisfaction is guaranteed.

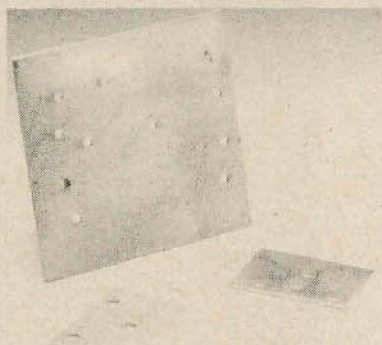
AEROTREND



Clod Buster Chassis Saver Kit

Aerotrend's Clod Buster Chassis Saver Kit is the result of extensive development; this final-production kit has been tested repeatedly, each time with positive results! It consists of three aluminum plates that are attached to the chassis in the same place as the suspension pivot balls. The holes in each plate are manufactured to close tolerances to ensure proper fit. It includes mounting hardware.

APM CUSTOM HOBBY



Clod Buster Frame-Reinforcing Kit

If you're tired of replacing your broken Clod Buster chassis, APM has a solution. Made of durable aluminum plate, the Clod Buster Frame-Reinforcing Kit strengthens your original chassis to greatly reduce its chances of breaking, even under high stress.

Part no. 305A

Price: \$14



Clod Buster Operational Tilt Front-End Kit

This Tilt Front-End Kit is fully operational with the use of a standard R/C car servo and a 3-channel radio. Send in your Clod Buster, including the front grill and rear-bumper assembly, and APM will cut the body and mount the hinges. All you'll have to do is mount the servo and linkage!

Part no. 316A



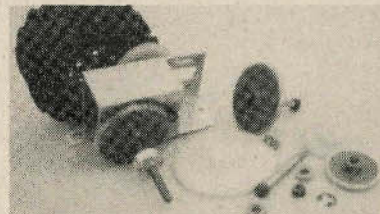
Dual Wheel Adapter Kit

Obtain maximum traction or just a wild look with APM's Dual Wheel Adapter Kit. Kits are available for the Tamiya Lunch Box, the Midnight Pumpkin, the Blackfoot, the Monster Beetle and the Clod Buster trucks. (Extra rims and tires aren't included.)

Part no. 102A (Lunch Box, Midnight Pumpkin); 404A (Blackfoot, Monster Beetle); 314A (Clod Buster).

Price: \$8.95/pair

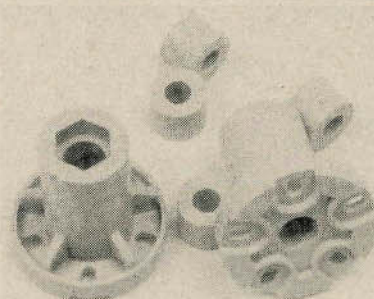
BENNETT EQUIPMENT



Assorted Gears and Gearboxes

Bennett Equipment carries a complete supply of nylon and aluminum spur gears. All are 32-pitch and come with either a 1/4-inch round or 1/4-inch hex hub; they must be adapted to fit other shaft sizes. Bennett stocks gears up to 96-tooth. Pinion shafts with 1/4-inch hex drive on one end and 9- or 11-tooth pinions on the other are for 1 1/2-inch-wide gearboxes, as used on the Pro Puller I or Pro Puller II.

CRM RACING



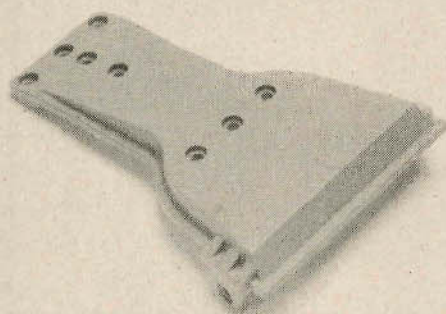
Big Bear Wheel Conversion

These adapters allow you to fit Blackfoot wheels and tires onto the Big Bear. Parts for both front and rear wheels are provided, and all you have to do is open the hole in the Blackfoot rear wheel with a 9/32-inch-diameter drill bit.

Part no. 204-1

Price: \$3.50

CRP

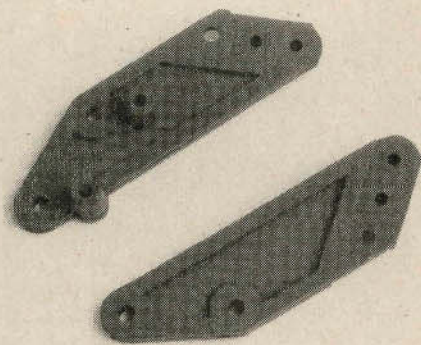


Chassis Stiffener

For the Frog, the Blackfoot and the Monster Beetle, this chassis stiffener replaces the metal skid plate. Molded to conform to the chassis, it reduces flexing in the front and helps eliminate breakage. (Best when used with part no. 3044.)

Part no. 3043

Price: \$7.50

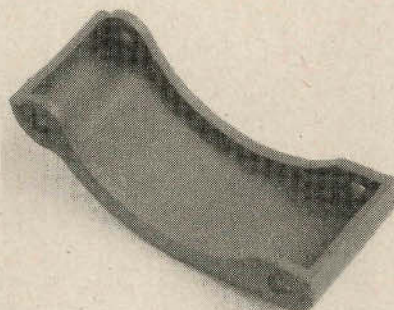


Rear Shock Mounts

For the Blackfoot, the Monster Beetle and the Frog, these allow you to mount shocks in the stock position without having to worry about shock-mount flexing and breakage, because they can be mounted to the car in three places.

Part no. 1622

Price: \$4.50

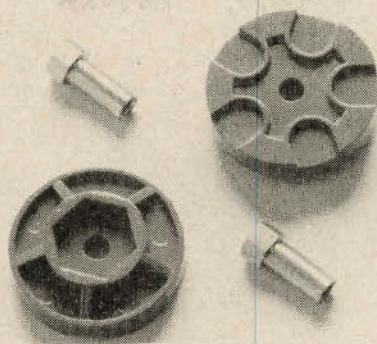


Rear Skid Plate

For the Frog, the Blackfoot and the Monster Beetle, this rear skid plate protects the bottom of your gear case from wear.

Part no. 3045

Price: \$7.50

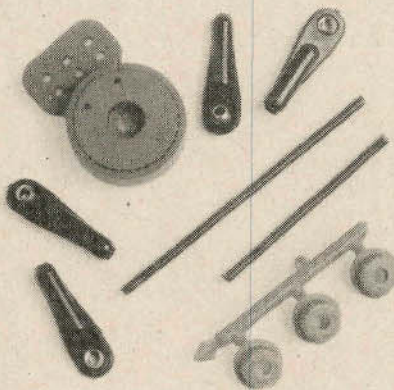


Rear-Wheel Adapter for Ultima to Monster Truck

With CRP's new wheel adapters, you can mount its no. 4126 wheels with its no. 4208/4209 tires or stock Blackfoot and Monster Beetle tires. Use them in conjunction with CRP's no. 1714 front stub axles. Adapters fit the Ultima and Turbo Ultima.

Part no. 1715

Price: \$9.99



Steering Kit for Blackfoot, Monster Beetle

This steering kit contains a heavy-duty servo-saver, a 4-40 rod and heim joints. The kit, which can be mounted to all popular servos, eliminates servo-saver breakage.

Part no. 1617

Price: \$12.99

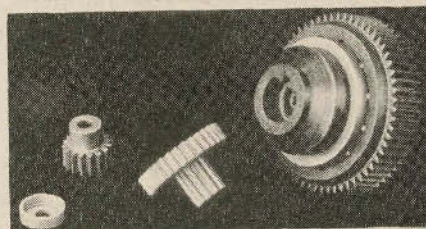
ESP MANUFACTURING



Clod Buster Rear Twin-Tube Bumper

ESP Manufacturing now produces a high-style, twin-tube rear bumper for the Clod Buster. Its all-aluminum construction is a perfect bolt-on match for the front ESP bumper.

MIP

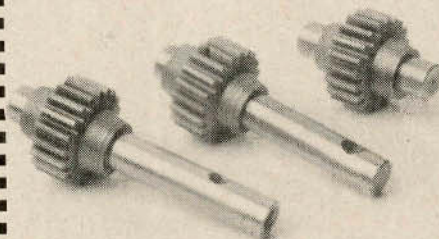


Big Bear Diff, Case Saver, Idler Gear and Pinion

MIP's ball-bearing differential for the Marui Big Bear is a stock replacement. The ball diff is adjustable for smoother takeoff and better control. The Case Saver protects your tranny case from meltdown caused by idler gear-shaft friction. The hardened-steel Idler Gear and Pinion replace stock parts for maximum performance. All items are sold separately.

Part no. BB-D; BB-C; BB-G.

Prices: \$37.50; \$2.95; \$15.95.



Steel Tranny Gears

MIP's tranny gears for its RC10 tranny and 4WD conversion are now available in hardened-steel alloy. These heavy-duty gears will make your tranny last longer and run stronger, and they're ideal for handling the heavy loads imposed by the popular RC10 monster-truck conversions and their larger tires.

PARMA



Dual-Wheel Adapters

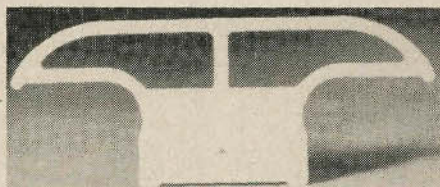
For an awesome-looking monster truck, try Parma's new Lunch Box/Midnight Pumpkin dual-wheel adapters.

Part no. 12846

Price: \$10/pair

ACCESSORIES

PRO-LINE



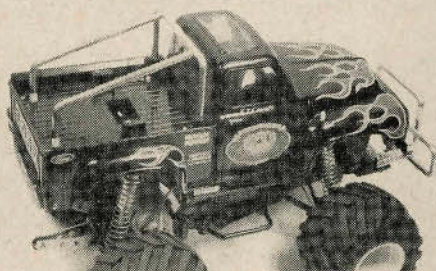
"Dyeable" Blackfoot Bumper

This "dyeable" nylon bumper will protect your Blackfoot.

Part no. 4512

Price: \$4.95

PRO-TRACK



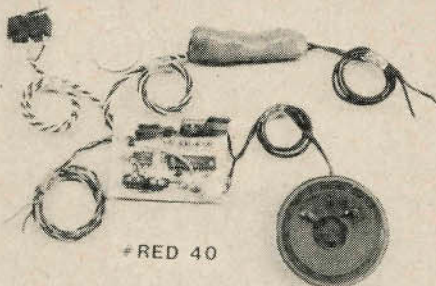
Solid Bar-Stock Aluminum Roll Cage

Pro-Track's newest addition to the monster truck fleet is its chrome-like, high-polish, aluminum roll cage. This roll cage is functional and good-looking, and although it's designed for the Blackfoot, Big Brute and Midnight Pumpkin, it can easily be made to fit most other flat-bed, Lexan, 1/10-scale truck bodies.

Part no. 077ARC/10

Price: \$8.95

RAM

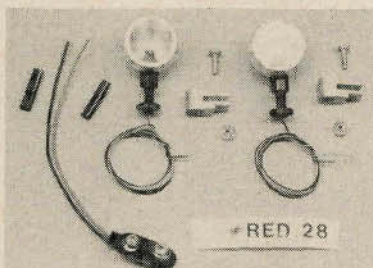


Gas/Diesel Engine Sound with Horn

Use RAM's sophisticated sound device to simulate a V8 engine and adjustable horn. It's completely assembled, has a 2-inch speaker and horn switch and is synchronized to car motor speed. It operates on 6 to 14.4 volts.

Part no. RED 40

Price: \$39.95

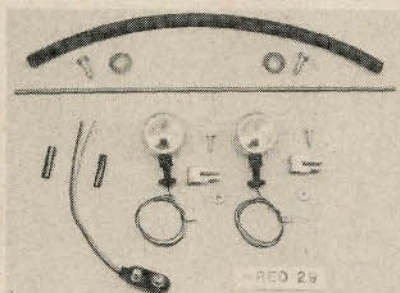


RAM Lites with Mounts for Tamiya Roll Bar

Two RAM Lites are packaged with two custom aluminum adapters that mount to the Tamiya roll bar, which is used on the Blackfoot and Midnight Pumpkin.

Part no. RED 28

Price: \$19.95



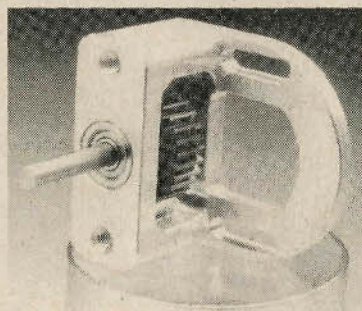
RAM Lites with Fold-Away Roll Bar

Now there's a roll bar that won't tear up your light-plastic truck and car bodies. Two RAM Lites are supplied with aluminum adapters and all hardware to make a roll bar that can be adapted to any R/C body.

Part no. RED 29

Price: \$24.95

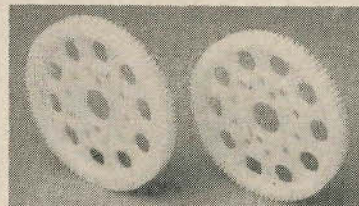
R/C RESEARCH ENGINEERING



Gear Reduction

To squeeze more pulling power out of your 2WD or 4WD R/C truck, try R/C Research Engineering's gear reductions. Designed for use with standard 48-pitch pinion gears, these units provide an infinite number of ratios for fine-tuning your pulling machine. The Gear Reductions have a machined-aluminum mount, "flangeless" bearings and a strong, steel pinion shaft.

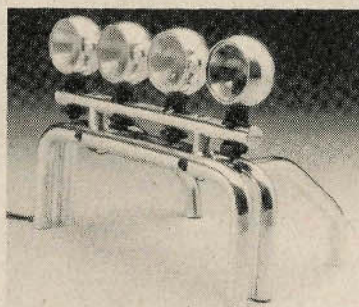
ROBINSON RACING



Oversize Spur Gears

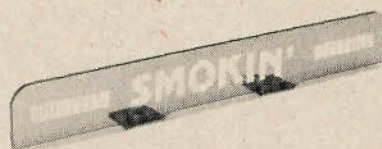
Robinson Racing has just introduced a new line of oversize spur gears for cars like the RC10 using a monster-truck conversion. These 90- and 93-tooth spur gears are manufactured with the same care and attention to detail as the rest of Robinson's line. With a calculated grease pocket to direct the flow of lubricants around the diff balls, and 10 differential balls instead of eight, operation will be smoother and more consistent. Gears are available in the 72- to 93-tooth range.

SMOKIN' HOBBIES



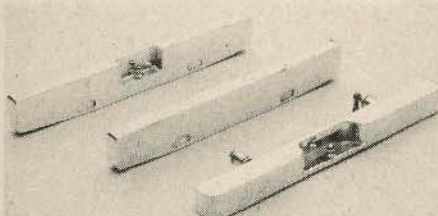
Custom Roll Bar

Smokin' Hobbies introduces its new double roll bar with optional working lights. Made of solid, polished aluminum, it's beautiful and extremely rugged. For increased durability, each section is fastened with 4-40 Allen-head hardware. This roll bar will fit either the Clod Buster or the Blackfoot. Optional rugged-aluminum lights are available separately.



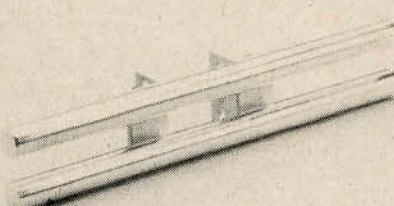
Bug Shield

For that extra touch of detail, Smokin' Hobbies offers a tinted bug shield for the Clod Buster. It's made of a durable, flexible material and cut to the same shape as those you see on full-scale trucks.



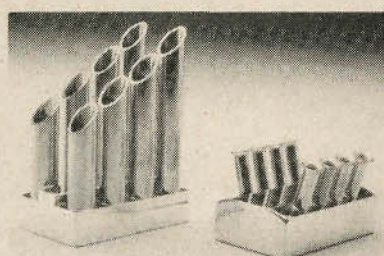
Clod Buster Bumpers

Smokin' Hobbies' Clod Buster bumpers are made of solid aluminum to take all the lumps you can deliver. They're also polished to a brilliant shine to make your Clod the sharpest one on the track. The Magnum front and rear bumpers are similar to those seen on the full-scale monster trucks; the Step-Down rear bumper is like the stock Clod Buster bumper, but it's made of solid, polished aluminum. Both types of rear bumper feature a ball hitch that can be used to tow around your favorite car on a custom trailer.



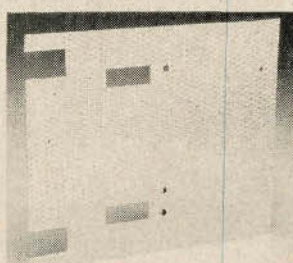
Skid Bars

These solid-aluminum skid bars are designed as direct replacements for the stock Clod Buster bars. Securely fastened with strong aluminum mounts, they won't pull out like the stock bars, and they're available for both the front and rear.



Hood Scoops

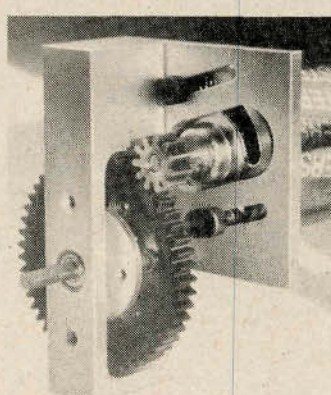
To add that personal touch, Smokin' Hobbies now offers two radical-looking direct-replacement hood scoops for the Tamiya Clod Buster. The "V" hood scoop has eight fuel-injector-type scoops arranged in a V configuration. The "Stacks" hood scoop has eight, wild-looking, descending stacks. Both scoops have a solid-aluminum base and require no modification for installation; simply bolt one in and go!



Bed Liner

For that full-scale custom look, Smokin' Hobbies offers this sharp-looking diamond-plate bed liner that's made of aluminum and polished to a bright finish. It will fit directly into the bed of the Clod Buster with no modifications. Liners are also available for the Blackfoot and Midnight Pumpkin.

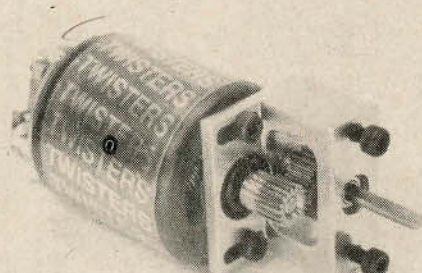
STORMER RACING



4-to-1 Gear-Reduction Transmission

Specifically designed to give your Clod Buster or Blackfoot more pulling power and yard-stomping ability, this aircraft-aluminum transmission bolts directly onto your existing gearbox without its needing to be modified. In addition, the 4:1 gear ratio can be changed to anything from 2.5 to 6.25:1. It comes with all the necessary hardware, gears and bearings.

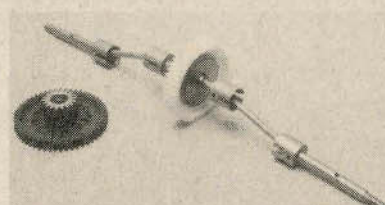
Part no. 2000 (with gears); 2001 (without gears).



2-to-1 Gearbox

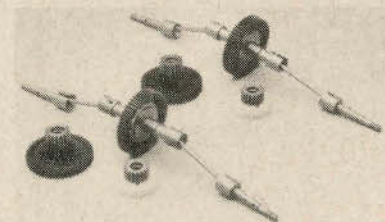
Stormer Racing offers this precision-machined, gold-anodized 2-to-1 gear reduction for use in many 2WD and 4WD monster trucks and conversions. It has a pair of flanged bearings that are fitted from the inside (unlike bearings without flanges, which must be glued into place), a strong steel shaft to support the pinion gear and a superbly machined, aluminum housing/motor mount with brilliant gold anodizing.

THORP MANUFACTURING



Blackfoot/Beetle Ball Diff

Thorp Manufacturing now offers a super-strong ball diff for the Tamiya Blackfoot and Monster Beetle. It can be used with either stock or improved Thorp dogbones and axles. To complete the conversion, Thorp also offers an extra-strong counter gear that will withstand considerably more use and abuse than stock gears.

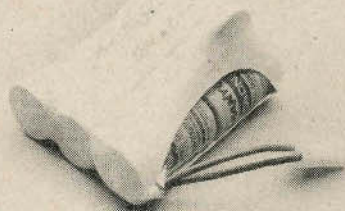


Kyosho Truck Diffs

Thorp now offers a host of high-performance drive accessories for the complete line of Kyosho electric trucks. Designed for use in the Big Brute, Double Dare, or Hi-Rider Corvette, these precision differentials provide infinitely smoother operation, and they can be tuned to suit your driving skills and track conditions. Axles and dogbones (which must be used with the Thorp diff) allow bind-free operation of the suspension over its entire range. The ball diffs, axles, dogbones, counter gear and idler gear are sold separately.

BATTERIES

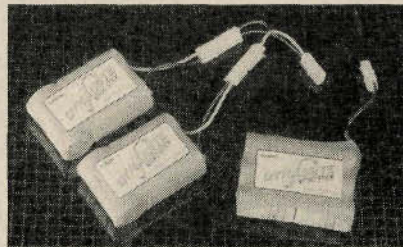
AEROTREND



C-Cell Clod Pack

Aerotrend now offers 2000mAh 8.4V battery packs for the Clod Buster. These packs have Sanyo KR-2000C cells, which provide extended run times, and this is ideal for twin stock or modified motors. The 7-cell configuration also provides faster top speeds than the standard 6-cell pack. Two packs can be joined with a harness for a total of 14 cells—ideal for sled pulling.

HORIZON HOBBY DISTRIBUTORS



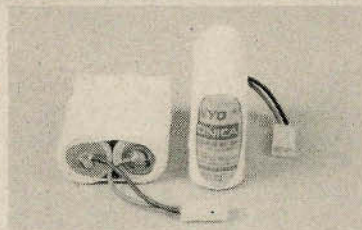
Dynamite Truck/Clod Buster Packs

The latest Dynamite Nitro-stick battery is made specifically for big trucks like Tamiya's mammoth Clod Buster. Available in both 2000mAh (for trucks like the Blackfoot) and 4000mAh (for the Clod Buster) capacities, these 7.2V, 6-cell batteries give significantly extended run times. All Dynamite packs use only the best Sanyo cells, so you're assured of top performance and reliability.

Part no. DYN1200; DYN1250.

Price: \$54.95; \$124.95.

PDI



Monster II Battery Pack

Try these D-size 2000mAh batteries for longer run times in your monster truck. These batteries are split into two 3-cell packs that can be mounted separately to distribute weight evenly.

Part no. 3005

Price: \$64.95/twin pack

BODY ACCESSORIES

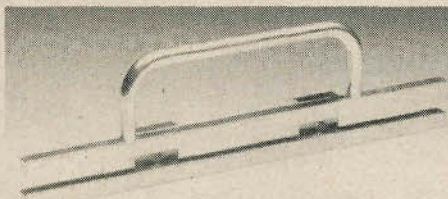
APM CUSTOM HOBBY



Aluminum Square and Round Rear Bumpers

Our square, aluminum rear bumper bolts directly onto the original body in the same place as the stock plastic bumper—without modification! The round rear-bumper tubes wrap around the corners of the body to provide extra protection. Available for the Lunch Box, Clod Buster, Pumpkin and Bruiser.

Price: \$20.95 to \$24.95

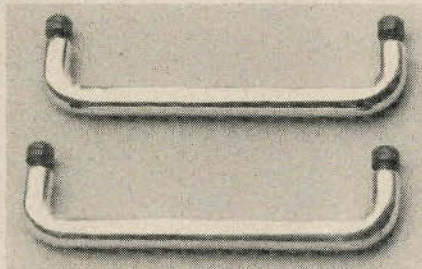


Aluminum Front Bumpers

Our square, aluminum front bumper is designed to be bolted directly onto your stock truck body in place of the original plastic bumpers. The round front bumper is swept back on both ends to wrap around the front fenders for added protection.

Part no. 201 (Bruiser); 202 (Clod); A (aluminum); B (brass); S (square).

Price: \$25.95 (aluminum); \$27.95 (brass).

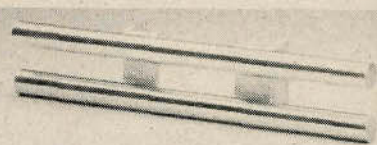


Blackfoot Side Body Guards

Give your Blackfoot that full-scale look with these custom side body guards. They're available in aluminum and brass, and their solid construction will ensure excellent protection and years of use.

Part no. 403A (aluminum); 403B (brass).

Price: \$10.95; \$11.95



Clod Buster Round Skid Bars

These skid bars are perfect companions for the APM round front and rear bumpers for the Clod Buster. They feature the same solid-aluminum construction for added protection and will mount on the Clod Buster's front and rear.

Part no. 308A (aluminum); 3308B (brass).

Price: \$15.95; \$18.95.

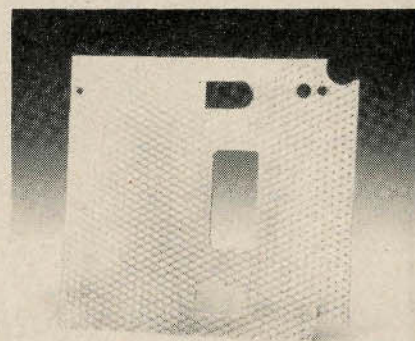


Double "Knurled" Side Body Guard

These radical-looking body guards are designed to fit and protect the sides of the Tamiya Clod Buster. Simply drill two holes in the side of the truck's body and attach the guard with the included mounting hardware.

Part no. 311A (aluminum); 311B (brass).

Price: \$24.95; \$27.95.



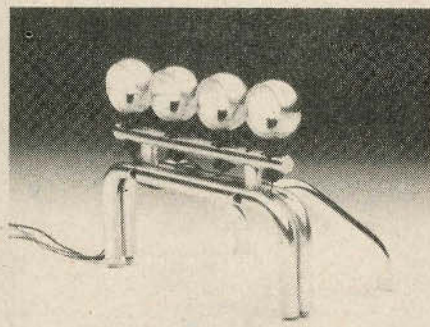
Diamond and Mirror Plate Bed Liners

These bed liners make a great addition to your custom monster truck. The diamond-plate bed liner is made of a highly polished, diamond-aluminum plate; the mirror-plate bed liner is made of a highly polished flat-aluminum plate. Both are made to fit the Tamiya Clod Buster, the Blackfoot and the Midnight Pumpkin monster trucks.

Part no. 312A (Clod Buster diamond plate); 312M (Clod Buster mirror plate); 402A (Blackfoot diamond plate); 402M (Blackfoot mirror plate); 502A (Pumpkin diamond plate); 502M (Pumpkin mirror plate).

Price: \$20.95 to \$23.95

BODY ACCESSORIES

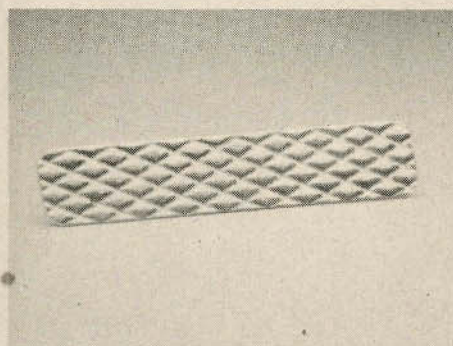


Double Roll Bar

APM's aluminum double roll bar is a direct replacement for your R/C truck's stock plastic one. Its heavy-duty construction gives considerably more protection during roll-overs and provides mounts for APM's optional light-bar kit with working lights. It's available for Tamiya Clod Buster, Blackfoot, Midnight Pumpkin and Bruiser trucks.

Part no. 306A (Clod Buster aluminum); 306B (brass); 400A (black aluminum); 400B (brass); 500A (Pumpkin aluminum); 500B (brass); 205A (Bruiser).

Price: \$32.95 (aluminum); \$34.95 (brass).

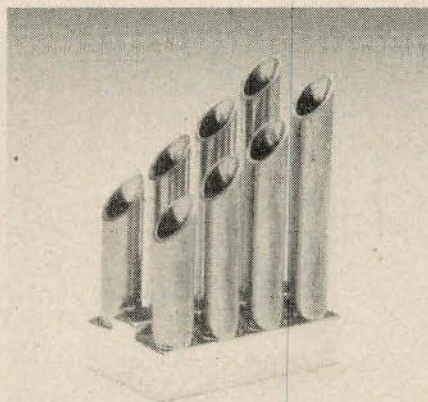


Midnight Pumpkin Step Plates

Designed for use on the Tamiya Midnight Pumpkin, step plates need no modification to be inserted into the stock body. Made of a polished-aluminum diamond plate, they're a beautiful addition to your truck.

Part no. 503A

Price: \$4.50

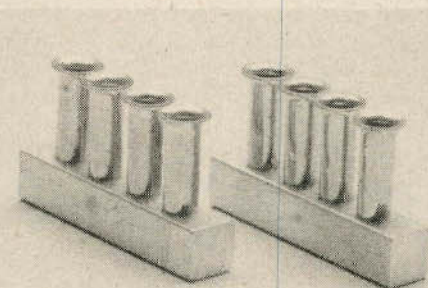


Truck Puller "Organ Stacks"

These unique "organ stacks" add a custom touch to your R/C car or truck. Available in aluminum or brass, they can be attached to any hood with the included hardware.

Part no. 053A (aluminum); 053B (brass).

Price: \$21.25; \$23.50.



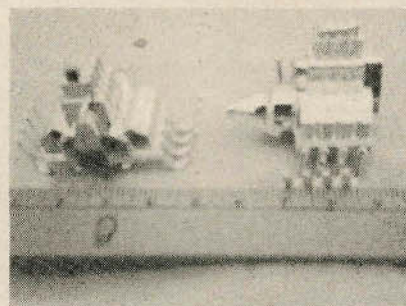
Two-Piece Fuel-Injection Stacks

These two-piece fuel-injection stacks offer you another alternative when choosing the ideal mounting location. Unlike one-piece stacks, they can be mounted close together or far apart. They're lighter, which is a real advantage when mounting them on a more flexible Lexan body. They're available with either aluminum or brass injector stacks.

Part no. 051A (aluminum); 051B (brass).

Price: \$13.25; \$14.95.

BENNETT EQUIPMENT



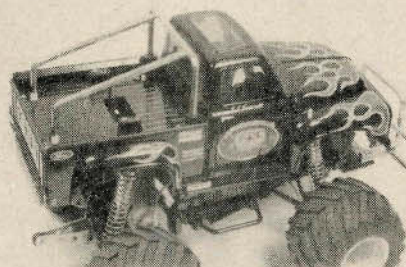
Chrome Motors

These chrome "hemi" V8s add the finishing touch to your custom vehicle. Use them as is, or add your own detailing. Made of sturdy plastic, they can be cut or trimmed for custom installations. The same motors are used on Pro Puller II bodies.

Part no. 821

Price: \$5

PRO-TRACK



Aluminum Round-Stock Roll Cages

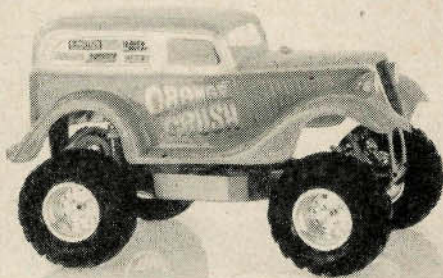
Solid-aluminum round-stock roll cages not only add to your truck's good looks, but also perform as well as the real thing! Polished to a chrome-like sheen, Pro-Track's roll cages are specifically designed to fit the Blackfoot, the Midnight Pumpkin and the Big Brute, but will easily fit all flat-bed, Lexan, 1/10-scale truck bodies.

Part no. 077ARC.

Price: \$8.95.

CONVERSION KITS

ADVANCE ENGINEERING

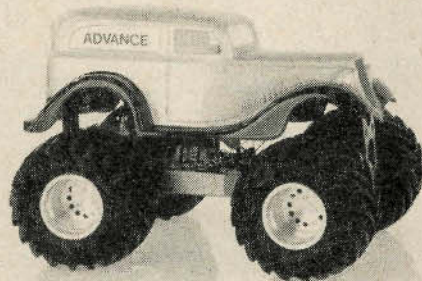


Transformer B

The monster truck conversion kit transforms your off-road buggy into a car-crushing monster. Everything you'll need to roll over the competition is included, e.g., aluminum Mini-Mags, Blackfoot-size tires, '34 sedan delivery body and custom body mounts. It's available to fit RC10, Optima, Ultima, JR-X2 and others.

Part no. 341000

Price: \$149.95



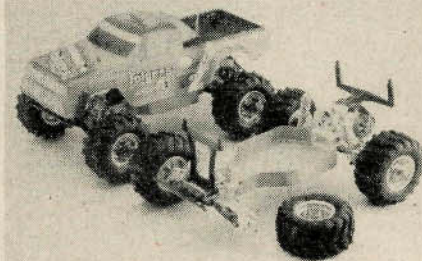
Transformer C

Unleash the beast in your buggy with the Transformer C. Get super performance from the ultra-rugged aluminum Mini-Mags and Clod Buster-size tires. The kit comes complete with a '34 sedan delivery body and custom body mounts to get you on the road quickly. It's available for RC10, Optima, Ultima, JR-X2 and others.

Part no. 341001

Price: \$269.95

ANDY'S R/C PRODUCTS

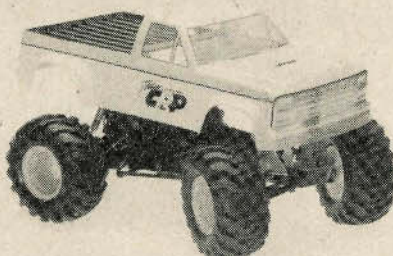


RC10 Truck Conversion

To keep pace with the ever-growing field of monster trucks, Andy's R/C has introduced a new monster truck conversion kit for the Associated RC10. It comes complete with

competition-ready, race-proven conversion parts, including wide-track front arms and lightweight rear arms; monster-truck, wide, front 4-40 steering rods; short front bumper; front and rear body mounts; monster-truck front spindles; monster-truck wheels, adapters and barrel nuts; and an Andy's Jeep Comanche truck body that's available in clear or painted Lexan.

CRP



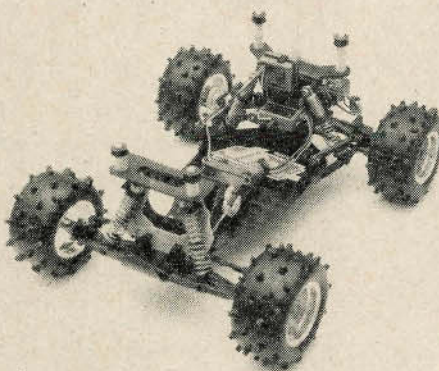
Hornet Truck Conversion Kits

CRP now offers conversion kits to turn your Hornet into a monster truck. The basic kit includes front-wheel adapter nuts and body mounts. The deluxe kit contains front-wheel adapter nuts, body mounts, tires, wheels and a Ford truck body.

Part no. 1567 (basic); 1568 (deluxe).

Price: \$19.99; \$89.99.

JG MFG.

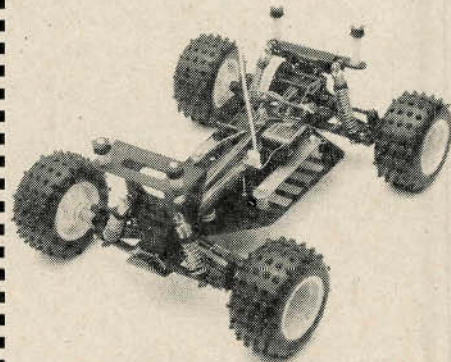


JR-X2 Monster Truck Conversion

The JR-X2 Basic Monster Truck Conversion kit includes front and rear body mounts, front axles, rear-wheel adapters, body posts and clips and foam spacers. The Total kit includes all this, plus front and rear rims, one set of front and rear Gigantis spiked tires, a Lexan truck body and front wheel bearings.

Part no. 1809 (Basic); 1811 (Total).

Price: \$35; \$112.95.

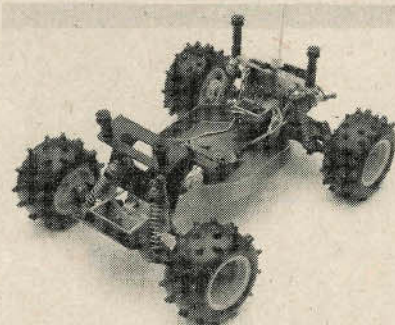


Optima Mid Monster Truck Conversion

The Optima Mid Basic Monster Truck Conversion kit comes with front and rear body mounts, front axles, rear-wheel adapters, body posts and clips and foam spacers. In addition to everything in the Basic, the Total kit has front and rear rims, one set of front and rear huge spiked tires, and a Lexan truck body.

Part no. 1518 (Basic); 1522 (Total).

Price: \$35; \$99.95.

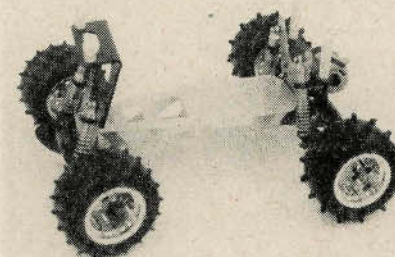


RC10 Conversion Kit

The RC10 Basic Monster Truck Conversion kit comes with front and rear body mounts, front axles, rear-wheel adapters, body posts and clips and foam spacers. The Total kit includes all this along with front and rear rims, one set of front and rear, huge, spiked tires, a Lexan truck body and front-wheel bearings.

Part no. A-17 (Basic); A-22 (Total).

Price: \$35; \$112.95.



Ultima Monster Truck Conversion

The Ultima Basic Monster Truck Conversion kit includes front and rear body mounts, front axles, rear-wheel adapters, body posts

MOTORS

and clips and foam spacers. The Total kit includes these additional parts: front and rear rims, one set of front and rear Gigantis spiked tires, Lexan truck body and front-wheel bearings.

Part no. 9016 (Basic); 9021 (Total).

Price: \$35; \$112.95.

PARMA



Hornet Monster Truck Conversion

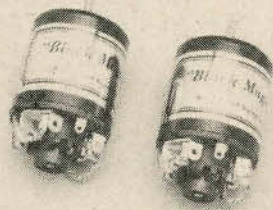
Parma now offers Grasshopper and Hornet owners a way to "get some respect" on the local scene. This Monster Truck Conversion kit makes it easy by giving you directions and all the hardware necessary to create your own monster truck. Although it's shown with an F-150 body, any 1/10-scale body will fit this monster. The tires and wheels are also available separately.

Part no. 12603

Price: \$29.95

MOTORS

R/C RESEARCH ENGINEERING



Monster Truck Motors

These new motors from R/C Research are designed for use in twin-motor trucks. Available in two configurations, they can provide either speed or pulling power. The speed motors are wound for use in competitive racing, where heavier twin-motor monsters need all the help they can get. The result is excellent speed without much loss of run time. The power motors are designed for use in twin-motor trucks for sled pulling. While they don't provide the run time of the speed motors, their raw torque is a challenge for a sled of any weight.

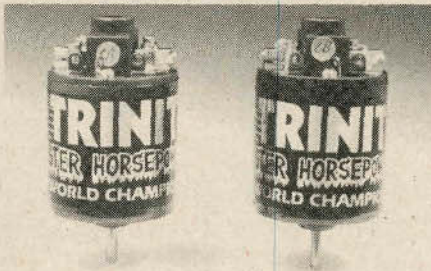
SPEEDWORKS



Monster Mash Motors

Trinity's new line of Speedworks motors includes the Monster Mash and Monster Mash 2. These inexpensive, high-performance motors are designed exclusively for monster trucks. The Monster Mash can be used in any 2WD or 4WD single-motor truck or conversion, and it provides plenty of pulling power and excellent top speed. The Monster Mash 2 is a reverse-rotation motor designed to be a second motor for twin-motor monsters or single-motor trucks using a gear reduction.

TRINITY

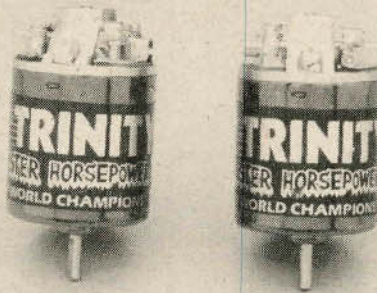


Clod Buster Power

Trinity introduces Clod Buster Motors with normal or reverse rotation. These wet-magnet motors are designed to generate lots of low-end torque for super climbing power. They'll make your Clod Buster king of the hill!

Part no. RC 2012 (normal rotation); RC 2012A (reverse rotation).

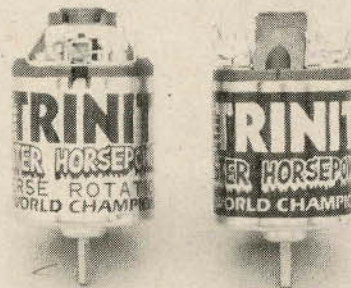
Price: \$59.99



Matched Madness

These new motors from Trinity are designed exclusively for twin-motor trucks, e.g., the Clod Buster and Double Dare. These top-of-the-line motors have precision hand-wound and balanced armatures, an aluminum heat-sink end bell, precision ball bearings, diamond-trued commutators, brush

heat sinks, and a wind configuration that's ideal for sled pulling or plain brute force. The matched set includes a standard-rotation motor and a reverse-rotation motor.



Monster Stock Motors

To meet the demands of stock-class-truck racers who run kit trucks or conversions, Trinity introduces a Reverse Rotation Stock Motor to go with its Monster Horsepower Stock. As a pair, these motors are ideal for twin-motor trucks; separately, the standard-rotation motor can be used by monster-truck racers who want more power and speed. The new Reverse Rotation Stock Motor is ideal for trucks with a gear reduction for pulling, or conversion trucks with gear reduction to compensate for their larger tires.

SUSPENSION ACCESSORIES

ASSOCIATED ELECTRICS



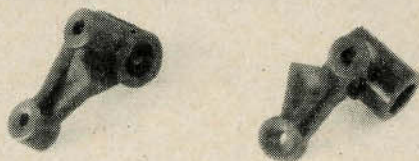
Silicone Shock Oil

Associated Silicone Shock Oil is the best! Once your car is tuned, it won't change with weather conditions; this oil won't thin in hot weather or thicken in the cold.

Price: \$3.50

SUSPENSION ACCESSORIES

CRP

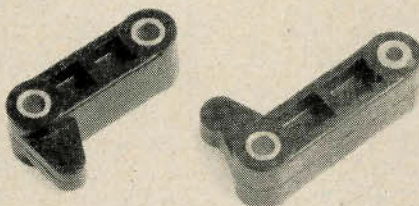


Blackfoot Steering Blocks

These are direct replacements for the Tamiya steering blocks on the Monster Beetle and the Blackfoot. Molded of high-impact plastic, they can be mounted in the stock location with no modifications.

Part no. 1618

Price: \$5.99



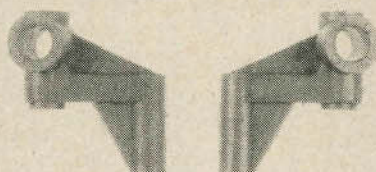
Front Suspension Arms

The front suspension arms on the Frog, the Blackfoot and the Monster Beetle wear quickly and become sloppy. CRP's come with bushings molded into the arms to reduce wear and extend life. Two pairs are needed for a car.

Part no. 1607

Price: \$6.99/pair

PARMA

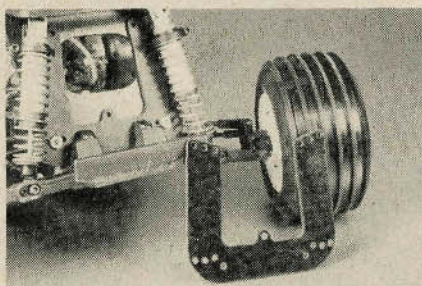


Blackfoot Steering Blocks

These steering blocks are made of heavy-duty nylon and directly replace the original steering arms on the Blackfoot or the Monster Beetle. They can "absorb" the toughest terrain without breaking.

Price: \$7

TEAM LOSI



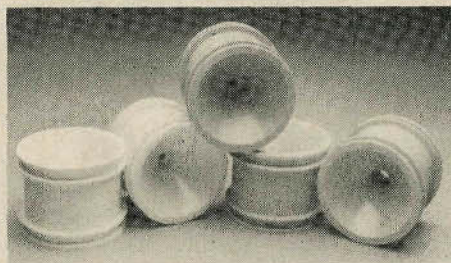
Monster Truck Front Shock Mount

The monster truck/buggy front shock mount is designed to use Team Losi long (rear) shocks up front for added suspension travel. When the track's roughness exceeds "scale" proportions, this shock tower will give you the edge you need. In addition to the longer (A-5001) shocks, there are three upper camber links and shock locations, which allow you greater tuning, better steering and more stability.

Part no. A-1010

TIRES AND WHEELS

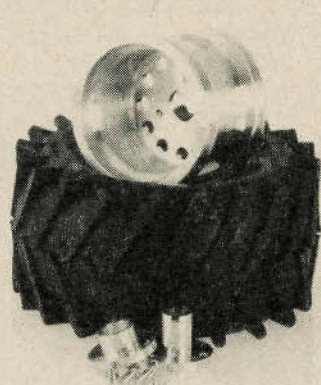
A&L



Monster Truck Rims

A&L Monster Truck Rims are designed to fit directly on the axle; this eliminates the need for wheel adapters and improves wheel offset, leverage, weight and bearing load. They fit RC10, JR-X2 and Kyosho monster-truck conversions, as well as some Tamiya cars and trucks. A&L rims are virtually indestructible and are molded in bright, fluorescent colors that won't scratch off.

ADVANCE ENGINEERING

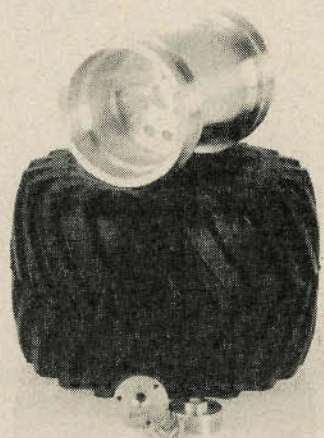


Blackfoot-Size Mini-Mags

You can dress up any popular car or truck with Advance's great-looking new wheels designed to fit Blackfoot-size tires. Computer-designed and machined, these are the lightest, strongest wheels for your truck.

Part no. U10B12R

Price: \$39.95



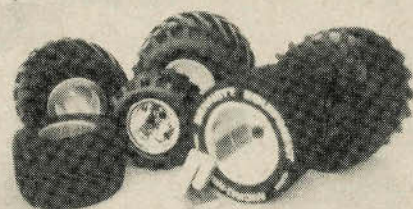
Clod Buster-Size Mini-Mags

Great looks and super performance are yours with the new Clod Buster-size Mini-Mags from Advance. These ultra-strong, lightweight wheels are perfect for dressing up your Clod Buster or converting your RC10, Optima, etc.

Part no. U10B12R

Price: \$74.95

BENNETT EQUIPMENT



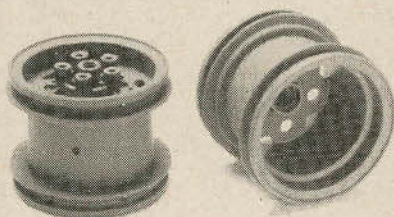
Pulling Tires and Rims

Bennett offers a wide selection of replacement tires and rims suitable for carpet or

TIRES AND WHEELS

dirt pulling. Available in plastic or custom aluminum, the rims have aluminum hubs with either 1/4-inch-round or 1/4-inch-hex centers, which can be modified to other sizes. Also shown are 5-ounce lead hang-on weights for weighting pulling vehicles; they cost \$1 each.

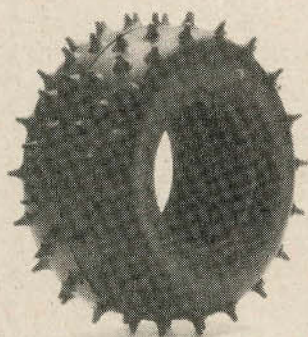
CRP



Blackfoot, Monster Beetle Wheels

These direct-replacement wheels are stronger than the originals and can be dyed. They mount on CRP no. 4208/4209 or stock tires.

Part no. 4125 (front); 4126 (rear).
Price: \$7.50/pair

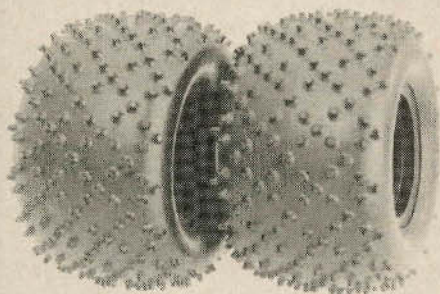


Monster Truck Tires

These new spiked tires designed for the Blackfoot or Monster Beetle give extra traction in soft dirt. They fit on CRP no. 4125 and 4126 rims, as well as on stock rims.

Part no. 4208
Price: \$17.99

HOBBICO



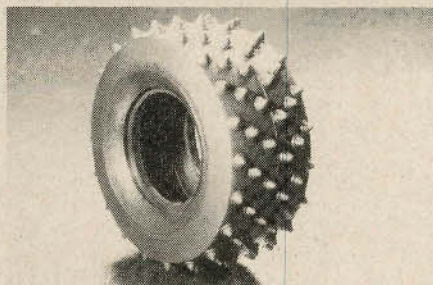
DuraTrax Monster Tires

DuraTrax introduces durable tires for monster trucks. Made of pure rubber, they're available to match most monster trucks and

have patterns that can grip almost any surface.

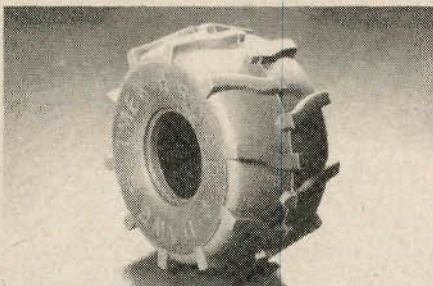
Price: from \$11.95

IMEX



Monster Spike Tire

For better control and traction for all-road racing, Imex introduces its Monster Spike Tire that's designed to fit Tamiya's Blackfoot and Monster Beetle. On dirt tracks, stock tires just slide; these spiked tires dig in!

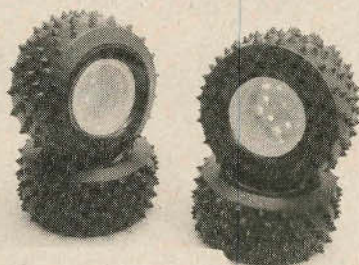


Truck-Pulling Tire

The Imex no. 7590 tire fits Tamiya's Lunch Box and Midnight Pumpkin. Molded of a soft rubber compound that affords the best traction when the pressure is on, they're also great for soft surfaces like mud and sand.

Part no. 7590

PARMA

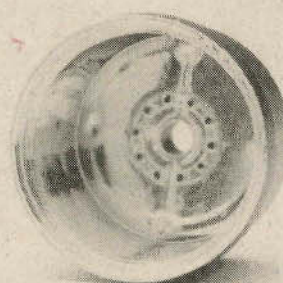


Pin-Spike Monster Tires & Wheels

Parma introduces Pin-Spike monster truck tires and wheels for the Blackfoot, Monster Beetle and others.

Part no. 12040 (front); 12041 (rear).
Price: \$25.75

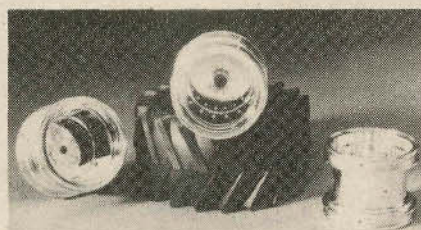
PRO-LINE



Big Bear Chrome Wheel

This is a direct-replacement wheel for the Big Bear. Simply bolt this chrome-plated beauty on and go stompin' in style. The rims are 2.1 inches in diameter.

Part no. 2512 (front); 2513 (rear).
Price: \$3/pair

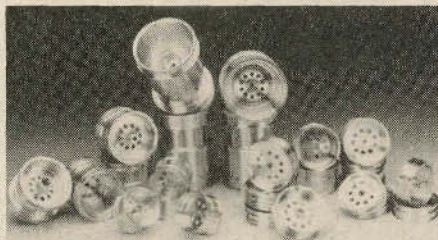


Chrome Monster Wheels

Here's a 2.2-inch-diameter chrome front-and-rear wheel set for the Blackfoot and Monster Beetle.

Part no. 2541
Price: \$15.90/set

SEES PRECISION MACHINE WORKS

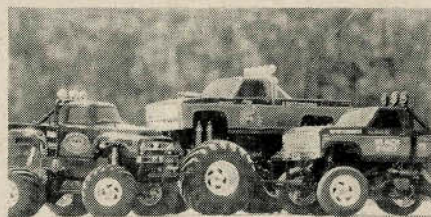


Aluminum Wheels with Holes

Sees' aluminum one-piece wheels are precision-machined, so they're perfectly round, balanced and extra light. They're reasonably priced and sold in pairs to fit RC10, Ultima, Optima, and JR-X2, Blackfoot, Clod Buster, Lunch Box/Pumpkin and Kyosho trucks.

TIRES AND WHEELS

SEES PRECISION MACHINE WORKS

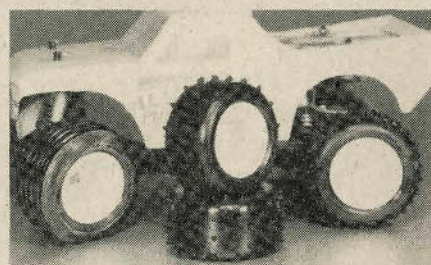


Directional Spoked Wheels

Adding to its line of machined-aluminum wheels, Sees now offers one-piece "directionally" spoked wheels for RC10, Blackfoot, Midnight Pumpkin, Clod Buster, JR-X2 and Kyosho cars. Available only through local hobby shops.

Part no. SEE2005 to 3415
Price: \$34.95 to 74.95

TEAM LOSI

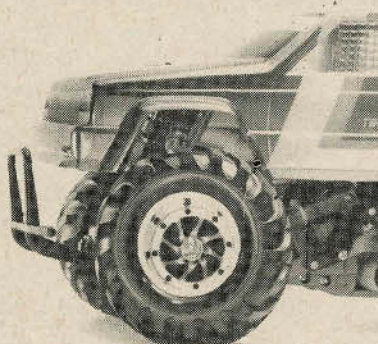


Monster Truck 6-Row Spike Tires

Team Losi's Monster Truck 6-Row Spike Tires offer the race-winning features of its little brother buggy tires. The unique self-cleaning, double-step, spike design is fantastic on all kinds of track. The exclusive H.T. compound rubber, developed for buggy racing by Team Losi, provides maximum traction. The oversize tire casing has track-tested internal radial and bias ribbing for exceptional support under extreme loads. They fit all 2.2-inch rims.

Part no. A-7600

TECNACRAFT

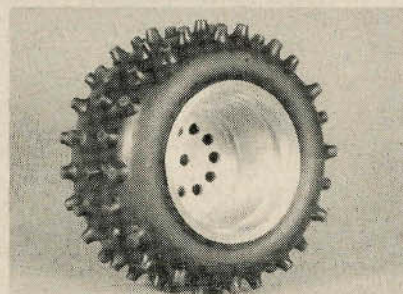


Modular Aluminum Blackfoot Wheels

Tecnacraft's new two-piece modular aluminum wheels for the Tamiya Blackfoot and Monster Beetle are manufactured on precision CNC machines to exacting tolerances. Its Blackfoot wheels are among the lightest, strongest, most distinctive aluminum wheels available, with centers in a choice of spoke patterns with optional gold anodizing.

Part no. 15-04
Price: \$129.95

TMS PRODUCTS



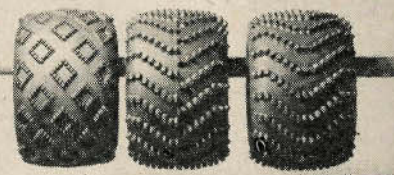
Blackfoot Tire with Aluminum Wheel

Shown here is the Blackfoot Tire no. 2203—one of more than 10 styles of molded-rub-

ber Blackfoot tires produced by TMS. It's mounted on the TMS Blackfoot one-piece aluminum wheel in the center-line, drilled style. (Also available are the center-line plain and directional "saw-blade" styles.)

Part no. 2203, with 5002H

Price: \$12/pair (tires); \$39.95/pair (wheels).

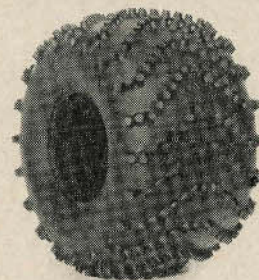


Spiked Clod Buster Tires

Three styles of Clod Buster tire are available from TMS Products. Molded from real rubber compounds, these tires are designed to withstand the punishment a Clod Buster dishes out.

Part no. 2400; 2401; 2402.
Price: \$22.95

TWINN-K



Clod Buster Tires

Twinn-K has just introduced molded-rubber tires to fit the Tamiya Clod Buster monster truck. These high-quality tires have rows of small spikes that improve traction. When mounted on the stock Clod Buster rim, the tire's diameter is 6 1/4 inches.

MANUFACTURER'S INDEX

A&L
1490 West Rincon #J
Corona, CA 91720

Advance Engineering
P.O. Box 766
Woodland Park, CO 80866

Aerotrend
31 Nichols St.
Ansonia, CT 06401

AJ's R/C
2102 Guildford Ave.
Schenectady, NY 12306

Andy's R/C Products
466 W. Arrow Hwy., Unit K
San Dimas, CA 91733

APM Custom Hobby
P.O. Box 357
Dumont, NJ 07628

Aristo-Craft/Polk's
346 Bergen Ave.
Jersey City, NJ 07304

Associated Electrics
3585 Cadillac Ave.
Costa Mesa, CA 92626

Bennett Equipment
900 East 1300 South
Romney, IN 47981

Bolink R/C Cars, Inc.
420 Hosea Rd.
Lawrenceville, GA 30245

CRM Racing
36099 Cathedral Canyon Dr.
Cathedral City, CA 92234

CRP
P.O. Box 2530
Atascadero, CA 93423

Dahm's Racing Bodies
P.O. Box 360
Cotati, CA 94931

ESP Manufacturing
7105 Virginia Rd.
Crystal Lake, IL 60014

Hobbico/Great Planes
P.O. Box 4021
Champaign, IL 61820

Horizon Hobby Distributors
P.O. Box 6029
Champaign, IL 61821

Imex Model Co.
53 Trade Zone Court
Ronkonkoma, NY 11779

JG Manufacturing
P.O. Box 6014
Whittier, CA 90609

Kyosho/Great Planes
P.O. Box 4021
Champaign, IL 61820

MIP
383 E. Edna Place
Covina, CA 91723

McAllister Racing
2245 First St., #105
Simi Valley, CA 93065

MRP
18676 142nd NE
Woodinville, WA 98072

Parma International
13927 Progress Pkwy.
North Royalton, OH 44133

PDI (Product Design, Inc.)
16922 NE 124th St.
Redmond, WA 98025

Pro-Line
P.O. Box 456
Beaumont, CA 92223

Pro-Track
9320 Bechtel Rd
Elyria, OH 44035

R/C Research Engineering
604 South Grand Ave.
Fowlerville, MI 48836

RAM
4736 N. Milwaukee Ave.
Chicago, IL 60630

Robinson Racing
165 N. Malena Dr.
Orange, CA 92669

Royal Products
790 W. Tennessee Ave.
Denver, CO 80223

Sees Precision Machine Works
1414 W. 134th St.
Gardena, CA 90249

Smokin' Hobbies
3 West Central Ave.
Pearl River, NY 10965

Speedworks
division of Trinity

Stormer Racing
P.O. Box 126
Glasgow, MT 59230

Tamiya/MRC
200 Carter Dr.
Edison, NJ 08817

Team Losi
1655 E. Mission Blvd.
Pomona, CA 91766

Tecnacraft
1335B Dayton St.
Salinas, CA 93901

Thorp Manufacturing
380 S. East End, Unit H
Pomona, CA 91766

TMS Products
1948-A Del Amo Blvd.
Torrance, CA 90501

Traxxas
12150 Shiloh Rd.
Dallas, TX 75228

Trinity Products
1901 E. Linden Ave.
Linden, NJ 07036

Twinn-K
P.O. Box 31228
Indianapolis, IN 46231

MAXIMUM CLOD

(Continued from page 126)

LIGHT THE LIGHTS

Four fog lights, five cab lights and two headlights are more than your average truck is ever going to deal with. Rather than switching to a 4-channel system to activate the lights, I put them on a microswitch that makes contact when the hood is down. To prevent them from draining the main batteries, the lights are powered from a separate 6-cell pack made of 1400mAh cells I bought from Hobby Lobby* (1700s are better, but I already had the 1400s). The light pack fits into the standard Clod Buster battery location.

CAVEAT EMPTOR

If you have the same mad gleam in your eye that I do, you might want to copy what I've done. You should know up front that this project was expensive. If you duplicate my truck exactly, the final cost, even at discount prices, is easily four times the original cost of the truck.

If you want to customize your Clod to this degree, you're better off doing it to a brand-new kit. You'll have to completely disassemble your Clod and rebuild it any-

way, and some of the steps involved in the reconstruction require drilling into the body; this can be very frightening if you've just finished rubbing out a beautiful lacquer paint job!

On the bright side, for about \$90 more,

you can buy the extra parts you'll need to build a stock Clod from the leftovers! In the "Not So Much Fun" column, trying to fit together parts from a half dozen or so manufacturers wasn't the pleasant expe-

(Continued on page 158)

Stop Paying Too Much for Batteries

Get the B&T Racing Team Price!

Sanyo 1700 SCE Cells

up to 639 **\$3.70** each (6 min)

640 - 659 **\$4.75** each (6 min)

660 - 674 **\$6.00** each (6 min)

Sanyo 1200 SCR Cells

Matched Cells **\$3.25** each (12 min)

Matched 6 cell packs as low as

\$25.00 each

Litespeed Stock Motors

Stop Paying the Big Bucks!

We Accept Mastercard!

B&T Racing Team

508 Lake Winds Trail ■ Rougemont, N.C. 27572

CALL 919-471-2060 8:00am to 8:00pm E.S.T.

We Make It Better!

TIRES & WHEELS

- A CRP/Dynamite RC10/Yokomo Tires, Spiked 4214
- B Tamaya Front Wheel Adaptor 4112
- C 1-Piece RC10 Rear Wheels 4113
- D Rear Wheel Adaptor, Fox to RC10 4120

SUSPENSION & STEERING

- E Front Stub Axles-RC10 Bearings 1553
- F Coil-Over Clamps (Set of 4) 1555
- G Shock Pressure Gaskets 9113
- H Servo Saver for "Quick-Steer" 9106

BUMPERS

- I Front Bumper 3030
- J Rear Bumper 3032

CHASSIS

- K Nerf Wing 3031
- L Chassis Mount Antenna 3021

MOTOR ACCESSORIES

- Motor/Battery Connector 2154
- Motor End Bell Cover, Foam 2158

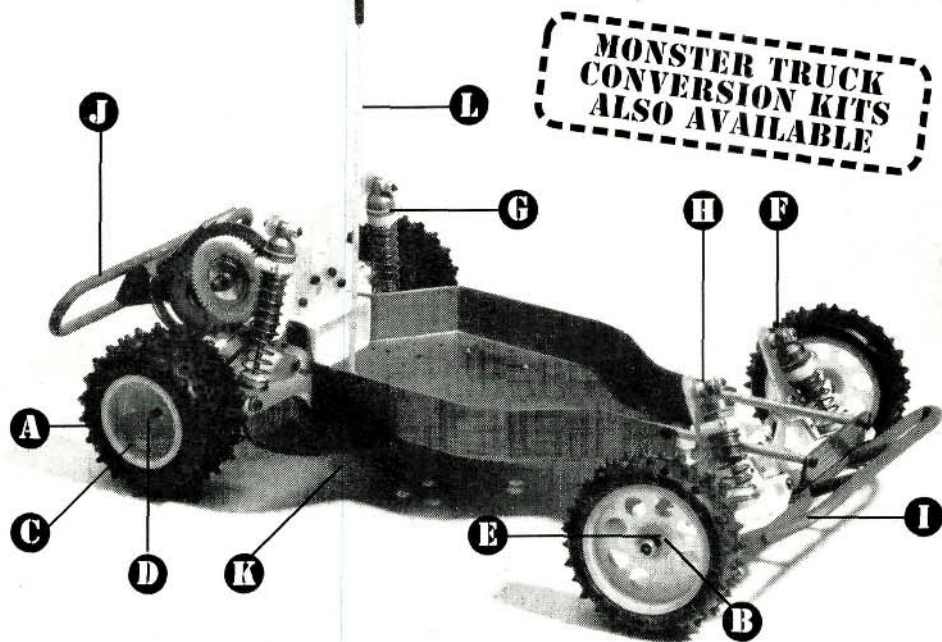
COMING SOON

Speed Control, Receiver Mount



Available Through Your Local Hobby Stores!

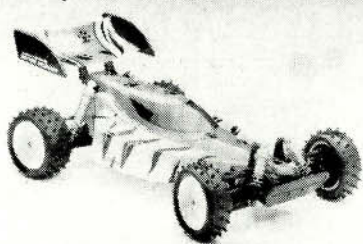
PROJECT: RC10



Custom Racing Products, Inc.

Post Office Box 2530
Atascadero, California 93423-2530
(805) 466-6945

WHAT'S NEW



SCHUMACHER Pro Cat

The Pro Cat is the latest in Schumacher's 4WD off-road cars. The Pro Cat incorporates hop-up parts and modifications that have been developed by team drivers over the past two years.

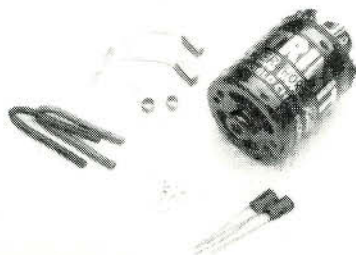
The Pro Cat has revised rear-suspension geometry that uses a single A-arm with an adjustable top link, and this permits rear-caster adjustment. The rear top and bottom suspension mounts have been beefed-up, and the new shock- and wing-mounting system allows for more progressive rear-suspension action.

The gearbox has been simplified for easier maintenance. The independent, three-pulley integrator was eliminated in favor of a standard layshaft and ball-diff assembly. This makes the gearbox easier to set up, it has less friction, and it makes track-side maintenance much quicker and easier. The spur gear also has a new, quick-change design.

The new chassis is designed for use with 6- or 7-cell, saddle-pack batteries. Battery straps allow rapid, easy battery changes without the mess or hassle of battery tape. Other improvements include a new front bulkhead design for easier belt-tension adjustment, and a new design for the body and undertray for less aerodynamic drag.

Price: \$399

For more information, contact Schumacher USA, 1901 E. Linden Ave. #8, Linden, NJ 07036.



TRINITY Motor Set-Up

Trinity's new Motor Set-Up includes: a wet-magnet motor can; a lightweight, nylon end bell; brush-hood heat sinks; brushes; brush springs; armature shims; motor wires; and a pair of high-quality capacitors. The Motor Set-up is ideal for replacing old, worn-out cans that have weak magnets, or for the money-conscious racing enthusiast who can change the armatures while using the same can.

Price: \$49.99

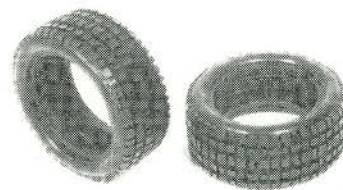


Titanium Hinge Pins

Magic Motorsports, a new division of Trinity Products, introduces titanium hinge-pin kits for the Optima Mid, the Yokomo YX-10 and the RC10. Not only are these hinge pins lighter than the stock ones, but they're also considerably stronger and much less susceptible to wear. They're designed as a direct replacement for the original hardware.

Price: \$19.99/set

For more information, contact Trinity Products, Inc., 1901 E. Linden Ave., #8, Linden, NJ 07036.



TWINN-K Molded Front Tires

For a more authentic-looking car, Twinn-K now has molded, front, street tires in a 1.9-inch i.d. These tires have realistic styling and a tread that works both on-road and off. Made to fit Schumacher Cat, Turbo Optima, Fox, Wild One, Hot Shot, Super Shot, and Royal Ripper, they match perfectly with Twinn-K's no. 9783 molded, rear, street tires.

Price: \$10.95/pair

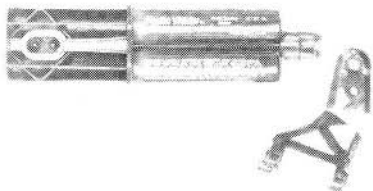


Decal Sheets

Want to be a name dropper? Twinn-K now offers decal sheets with logos of the hobby industry's most popular manufacturing companies. Two different sheets now available. The no. 9814 Hobby Industry Logo & Sponsor Sheet (5-color) includes Advanced, Badger, Cobra, Dahm's, Futaba, Paragon, Race Prep and others. The no. 9815 Hobby Industry Logo & Sponsor Sheet (6-color) includes Cheetah, CRP, Dan's, Klotz, Lazer Lite, Team Pit Stop, Team Hammer and others.

Price: \$2.75 each

For more information, contact Twinn-K Inc., P.O. Box 31228, Indianapolis, IN 46231.

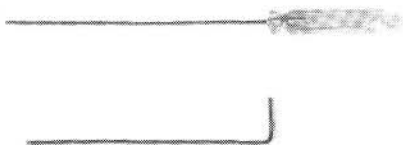


DEVCON Plastic Welder

This is a unique plastic-bonding system for most plastic R/C car parts. It makes an extremely tough bond, whether you're adhering plastic to plastic, plastic to metal, or metal to metal. To get you back on the track quickly, Plastic Welder creates a permanent bond in 15 to 30 seconds. The only plastics it won't work on are polyethylene and polypropylene.

Price: \$4

For more information, contact Du-Bro Products, P.O. Box 815 Wauconda, IL 60048.

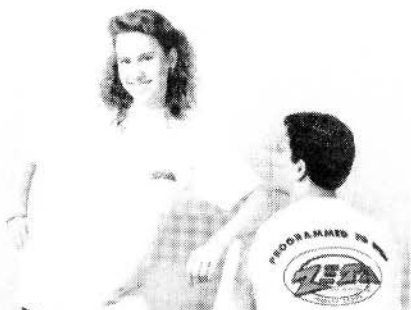


DU-BRO Ball Wrenches

Du-Bro's two new ball wrenches work great on 4-40 socket setscrews that are included with some of our collars and other hardware. These two new wrenches round out Du-Bro's ball wrench line.

Nos. 507; 508. Price: \$2; .60

For more information, contact Du-Bro Products, P.O. Box 815 Wauconda, IL 60048.



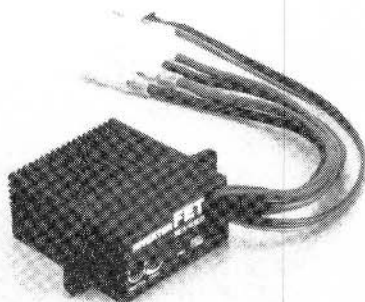
PDI Zeta T-Shirt

PDI's new Zeta T-Shirts are now available. These 50/50-blend, machine-washable, white Hanes shirts have the

distinctive red and black Zeta logo silk-screened on the back and across the front pocket area. Adult sizes small to XXL.

Price: \$9.50 (\$3 additional for XXL size)

For more information, contact Product Design Inc., 16922 124th St., Redmond, WA 98052.



JR 850B Speed Controller

The JR 850B Speed Controller with reverse is a state-of-the-art, competition speed control that offers better performance and increased reliability.

Its power Mosfet provides full power with minimal voltage loss from the Ni-Cds to the motor. The 850B fits into a standard servo mount, has no relay reverse system, and has overload protection. It has a new RF switching system for smoother motor control, a forward and reverse monitor LED, forward and reverse high-point monitor LED for setup adjustments, and a built-in heat sink. Its voltage regulator supplies power to the receiver and servos. A separate receiver battery isn't necessary, but one can be used. The 850B has a built-in BEC (battery eliminator circuit) to power the receiver and servos from the car's main batteries. No. JRA850B FET Control system 7.2 to 9.6V (with reverse); continuous current, 20 amps/forward; surge current, 240 amps/forward.

Price: \$79.99

For more information, contact Hobby Dynamics, P.O. Box 3726, Champaign, IL 61826.



TMS Mazda Truck

TMS has left nothing off its Mazda off-road truck body: all the details are molded-in. Made of tough G.E. .040 Lexan, this new TMS Mazda truck body is a sturdy performer. K.C. Hi-Lighters, double roll bar, flared fenders and spare tire are just a few of the features. It's designed to fit on the Tamiya Blackfoot, Monster Beetle and the JR-X2 or RC10 monster-truck conversions.

Price: \$20.95

For more information, contact TMS Products, 1948-A Del Amo Blvd., Torrance, CA 90501.



SAT Traction Compound

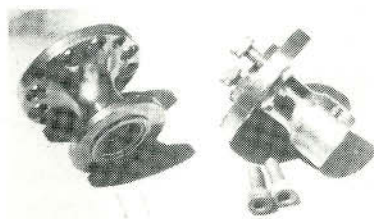
SAT Traction Compound is designed for foam or rubber tires. On foam tires, it not only increases traction, but also helps prevent chunking. On rubber tires, it provides traction in the early laps while the tires heat up.

Price: \$5.95

For more information, contact Remote Hobby Inc., 9005-C Two Notch Road, Columbia, SC 29223.

(Continued on page 156)

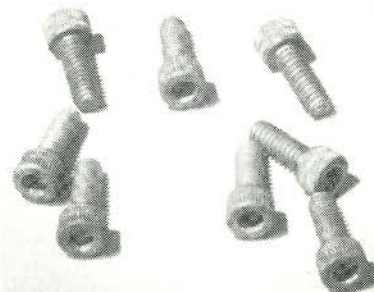
WHAT'S NEW



BUD'S RACING Lightweight Pro Hubs

These hubs are drilled, lightened and anodized high-quality aluminum. Up to 1/2 ounce of power-robbing rotating mass is eliminated without sacrificing strength. The hubs come complete with 10-32 hollow setscrews, 5-40 hardened-aluminum capscrews for fastening the wheels, and nylon diff ring pins so you can run Bud's no. 2111 notched drive rings. The gear-side hub is machined to accept ball bearings. The offset on the hub is similar to that of the TRC and Bolink cars, or any others using their hubs. For a complete catalog, send \$1 and a large, self-addressed envelope.

Price: \$29.95/pair

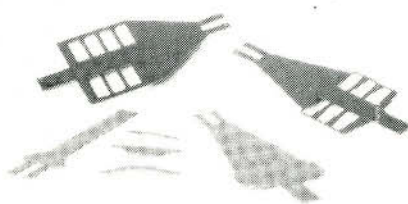


Aluminum Capscrews

These aluminum capscrews are hardened to ensure long life, yet they're very light, which can be helpful in reducing rotating mass when they're used to attach wheels to your on-road car, or just for lightening wherever 5-40 fasteners are used. These are the same capscrews that are used on the Lightweight Pro Hubs, and they will fit most popular on-road wheels. For a complete catalog, send \$1 and a large, self-addressed envelope.

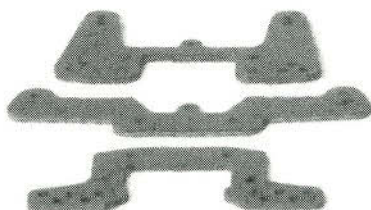
Price: \$5.95

For more information, contact Bud's Racing Products, 52435 Rt. 113, Dept. RCCA, Wakeman, OH 44889.



BULLET RACING Cat Chassis

Bullet Racing now offers a graphite chassis for the Schumacher Cat. The chassis and shock towers are made from .084-inch graphite. Shown are BRP 1200 standard chassis, BRP 1201 saddle mod chassis and 1205 3&3 pan chassis, 1203 XLS top plate and 1204 XLS shock towers.

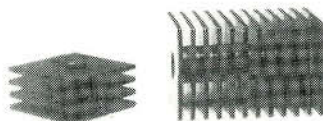


Shock Towers

Bullet Racing Products offers graphite front and rear shock towers for the Optima Mid. They require no modification for installation, they're much more resistant to damage than the stock shock towers, and they're considerably lighter. Made from .084-inch-thick graphite, these shock towers are as tough as they come.

Price: \$14.95

For more information, contact Bullet Racing Products, Inc., 14435 Tomball Pkwy., Houston, TX 77086.



TEKIN ELECTRONICS High-Capacity Heat Sinks

If you run the hot motor winds and overheat your electronic speed controller, Tekin has the answer for you. Tekin's new HS1500 high-capacity heat sinks can reduce the voltage drop and extend the amperage-handling abil-

ity of your ESC by more than 50 percent. Just stick them on your speed controller in place of the smaller, standard ones. Although they'll work with any motor, they're especially recommended for running a hot motor wind.

Price: \$15

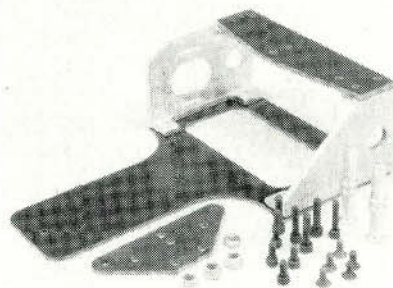
For more information, contact Tekin Electronics, 970 Negocio, San Clemente, CA 92672.



BOLINK R/C Car Bag

Bolink's R/C car bag has a new look: it's made of durable nylon and has reinforced carrying straps. The black bag with a white Bolink logo is large enough to accommodate most 1/10-scale on- and off-road cars and some smaller monster trucks.

Price: \$24.95



Rear-End Kit

This kit allows you to convert your Eliminator Sport to a complete Eliminator 10. The kit includes: T-plate, aluminum motor mount and axle carrier, shock plate and mounts, rear brace and all hardware. All you need is a BL-5171 shock kit.

Price: \$59.95

For more information, contact Bolink R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245.

(Continued on page 160)

A SPECIAL MESSAGE TO RETAILERS

IMAGINE the benefits of drawing many more regular customers into your store every month. Imagine adding a popular, **profitable**—and returnable—hobby product to your store. By stocking **Model Airplane News**, **Radio Control Car Action** and **Radio Control Boat Modeler**, you'll accomplish both! These are the most informative and entertaining modeling magazines available to the R/C consumer—and they're in tremendous demand. These magazines will actually stimulate more sales of R/C airplanes, cars, boats and accessories for you.

If you're not already stocking Air Age magazines, please call us toll-free and we'll let you know how they can make money for you.

Call Kathleen Toll-Free at
1-800-243-6685

(in CT, 203-834-2900)
(dealer inquiries only)

Air Age Publishing • 251 Danbury Road • Wilton, CT 06897

MAXIMUM CLOD

(Continued from page 151)

rience I thought it would be, but considering the stares I get from anyone who sees the truck, it was worth it!

To be fair to the incredible number of Clod Buster after-market parts manufacturers, I simply worked my way through the ads from the east coast to the west, and I only had to go as far as Colorado for most of the pieces. Many companies make Clod parts in both aluminum and chrome, and often they duplicate one another's work (just take a look at the ads in this magazine!).

Look around and come up with your own ideas. You don't necessarily want to be a copy machine. Customizing is a personal experience, and it's what makes the difference between a model that rates an "oooh!" and one that only gets an "oh."

*Here are the addresses of the companies mentioned in this article:

Tamiya/MRC, 200 Carter Dr., Edison, NJ 08817.
Aerotrend, 31 Nichols St., Ansonia, CA 06401.
ESP, Inc., 7105 Virginia Rd., Crystal Lake, IL 60014.
Sassy Chassis, 204 South Oak St., Itasca, IL 60143.
Trinity, 1901 E. Linden Ave., #8, Linden, NJ 07036.
Advance Engineering, P.O. Box 766, Woodland Park, CO 80866.

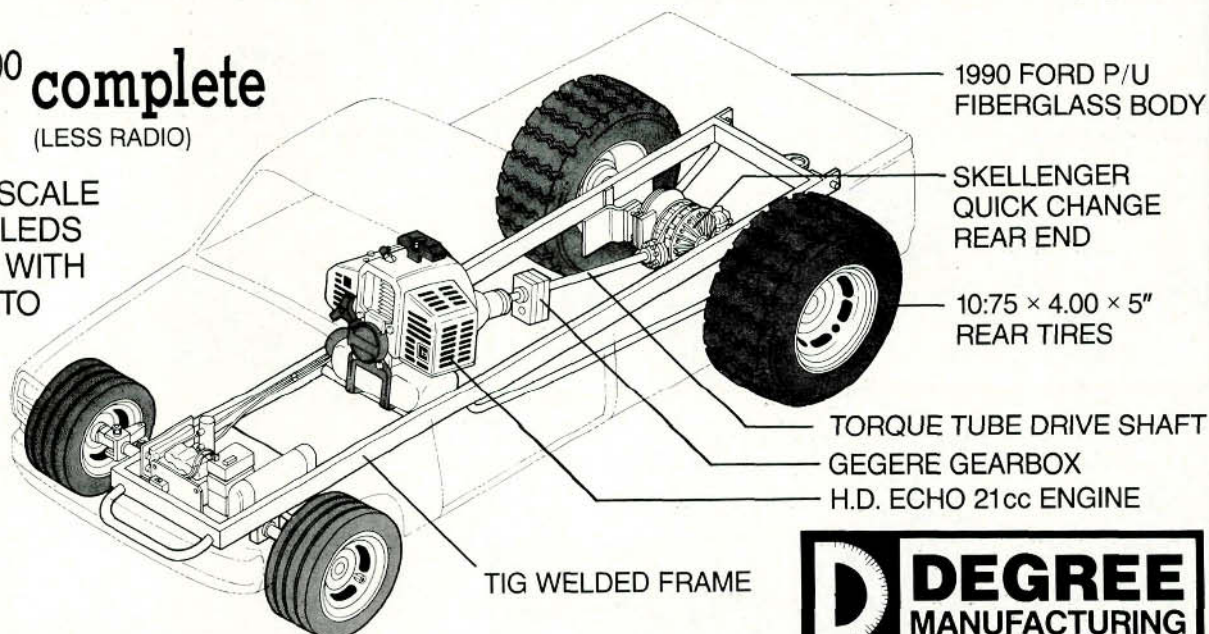
(Continued on page 164)

NEW!

MYTOY *Quarter Scale* PULLING TRUCK

\$1795.⁰⁰ complete
(LESS RADIO)

QUARTER SCALE
PULLING SLEDS
AVAILABLE WITH
CAPACITY TO
1500 LB.



NOW AVAILABLE...

Quarter Scale
Bubble Wheel Balancer

DEALER INQUIRIES
INVITED



1020 Bartlett Dr.
Vista, CA 92084
(619) 758-0588

WHAT'S NEW



RACER'S CHOICE Racing Chemicals

Racer's Choice R/C Product's new line of quality R/C lubricants, traction formulas, motor spray, bearing-soaking solution and performance motor drops is now available through select distributors.

The tire-traction formulas have a fruit-oil base and their pleasant fragrance isn't harmful, even for use in confined, indoor spaces. The lubricants have been ASTM tested and come to the R/C industry after successful applications in the aerospace and high-speed bearing fields. Racer's Choice also has motor drops that last long and increase speed while lowering amperage draw. The all-natural bearing cleaner is great for removing rubber-tire dust and soil. The motor/bearing spray comes in a 20-ounce aerosol can with special ingredients included that enhance cleaning and prevent condensation.

For more information, contact Racer's Choice R/C Products Inc., P.O. Box 405, Medinah, IL 60157.

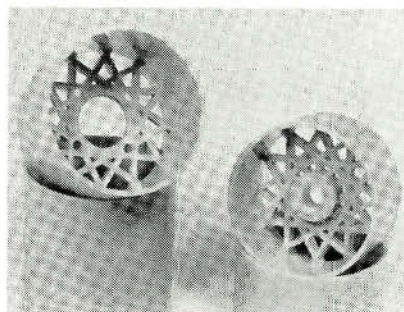


PARMA Nissan GTP-ZX

Here's another beautifully detailed body from Parma: the Nissan GTP-ZX. This 1/10-scale Lexan beauty is bound to be a big hit with road-racing fans. For

details about this and all Parma bodies for 1/10, 1/12 and 1/8 scale, contact your local Parma dealer.

Price: \$19

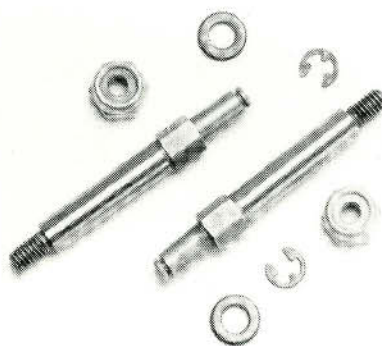


BBS Wheels

Parma International now offers 1/10-scale fluorescent red BBS wheels for concourse-winning style. These European-styled wheels will make any car look like a winner, and now they're available in a set of four!

No. 17138. Price \$11

For more information, contact Parma International, 13927 Progress Pkwy., North Royalton, OH 44133.

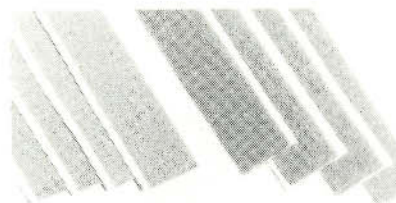


CRP Stub Axles

Instead of buying a complete monster-truck conversion for your R/C car, CRP offers these stubs axles to adapt Tamiya-style monster wheels and tires to your RC10. With CRP's rear-wheel adapters (no. 1560), and some body mounts, you can have your RC10 ridin' high.

Price: \$9.99

For more information, contact Custom Racing Products, P.O. Box 2530, Atascadero, CA 93423.



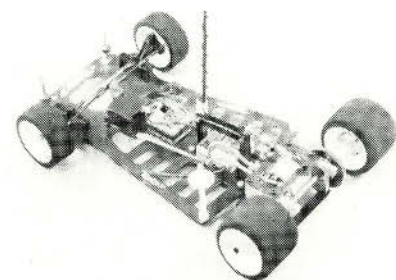
ADVANCED
RACING TECHNOLOGIES

ADVANCED RACING Super Self-Stick Velcro

For the rugged demands of R/C cars, Advanced Racing Technologies now offers Self-Stick Velcro. Use it for mounting electronics when switching gears from dirt trucks to road cars, or to hold your dragster body firmly in place. This adhesive-backed Velcro provides secure, yet removable, fastening properties to keep your act together! Don't gamble with dime-store Velcro!

Price: \$2.75

For more information, contact Advanced Racing Technologies, 460 Cypress Lane, Suite F, El Cajon, CA 92020.



TWISTER Cyclone

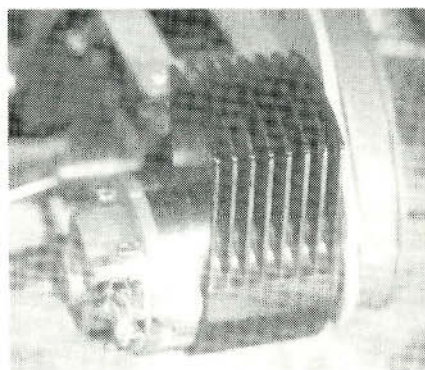
Look for Twister's new Cyclone: this 1/10-scale racer is sure to be one of the hottest cars on the market in 1990. With Gary Kyes at the wheel, the Cyclone dominated the A-Main at the very prestigious Futaba Grand Prix. Its ultra-low center of gravity and central motor position make this one of the best-handling 1/10-scale cars. The ease of assembly and low price will give you Twister's unfair advantage.

Price: \$270

For more information, contact Twister Motors, 657 E. Arrow Hwy., Suite H, Glendora, CA 91740.

(Continued on page 162)

WHAT'S NEW

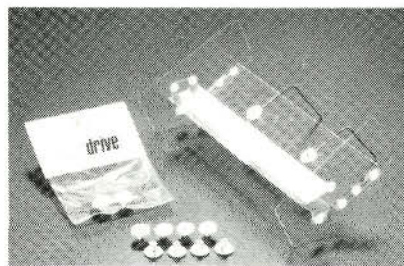


HOLE SHOT Super Cooler 2000

The Super Cooler 2000 has been race proven for more than a year without one motor failing from excessive heat build-up. Tests have shown that this heat sink is extremely effective for increasing run time, as well as brush and motor life. The Super Cooler 200 is black-anodized, and it's extremely light (just over 1/2 ounce). It can be installed in seconds on JR-X2 and Ultima motors, and it will fit the RC10 with minor modifications. It will also fit the new Composite Craft/TRC Lynx II. The Super Cooler 2000 was recently used on a Lynx II to set a new stock-class track record.

Price: \$24.95

For more information, contact Hole Shot Products, P.O. Box 630, Canton, MA 02021.



HYPERDRIVE RACING Wing Buttons

Hyperdrive Racing now offers these high-grade aluminum wing buttons that are used on the Hyper 10. They won't strip or deform the wing, they're lighter than nylon, and they can be adjusted from the top.

Price: \$4/pair



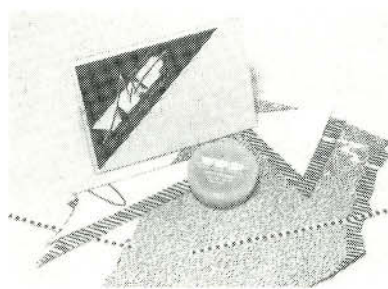
Hyperbite Tires

These tires are mounted and trued on BBS-style wheels and are available in five compounds for the front and five for the rear. Hyperbite tires have only one seam (which greatly reduces the chance of splitting), and the glue is highly resistant to traction compounds.

Four rear and two front compounds are extended-wear rubber that's graded with the standard yellow, green and blue markings. Compared with standard tires, these compounds should show an improvement in tire life. One rear and three front compounds are ultra-long-wear rubber that's graded with gold, silver and black markings. Depending on track surface and car set-up, these tires will last three to five times longer than the extended-wear compounds.

Price: \$15; \$24

For more information, contact Hyperdrive Racing Systems, Inc., 3210 Howard Nickell Road, Fayetteville, AR 72703.



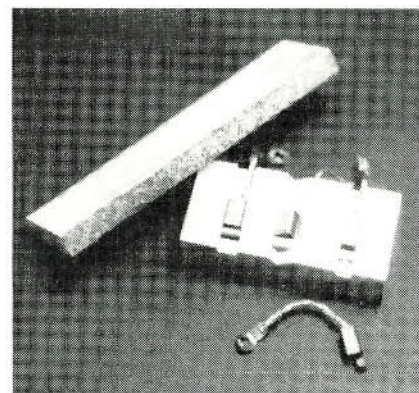
VRP Synthetic Grease

VRP Lubridiff is a high-tech synthetic grease for use on all ball-type differentials. It has a very high traction coefficient, which allows the diff balls to grip the rings without unnecessary diff

tightening. Lubridiff's unique properties allow the diff to work smoothly and efficiently. Unlike other diff lubes that are silicone-based greases, this product was specifically formulated for R/C cars. This hot-pink product has become the racers' choice across the country.

No. LD928. Price: \$4.50

For more information, contact Verona Racing Products, 4555 Groves Rd., #15, Columbus, OH 43232.



RACE MASTER Brush Factory

You're at a big race, and the special motor brushes you need can't be found anywhere! Race Master has the solution. The Brush Factory allows you to turn stock, full brushes into timed, cut, contoured, or even turbo-cut brushes. This easy-to-use tool allows you to create any type of brush you can imagine. The brush factory will pay for itself in no time, because you'll no longer need to buy expensive brushes: you can make your own from stock brushes.

Price: \$19.95

For more information, contact Race Master Mfg., 6721-A Alder Dr., Houston, TX 77081.

Descriptions of new products appearing on these pages were derived from press releases supplied by the manufacturers and/or their advertising agencies. The information given here does not constitute endorsement by Radio Control Car Action, nor guarantee product performance or safety. When writing to the manufacturer about any product described here, be sure to mention that you read about it in Radio Control Car Action.

Get your hands on a

The newest winner from **Kyosho** is the 2WD **Ultima Pro XL**. It's hot with technology and design to give you the competitive edge for the 1990s.

Improvements are significant: ■ 3/8" longer carbon fiber graphite chassis for more stability. ■ 30° of "kick up" angle on the chassis with wide front suspension arms for quicker response and smoother handling.



■ Traction and stability improve with long suspension arms with inboard hinge points and a new "deep hub design" rear axle carrier. ■ Each rear suspension arm has a turnbuckle for infinitely adjustable rear toe-in.

Excellence is standard with Kyosho Gold Shocks, complete ball bearings, turnbuckle upper suspension links, and Kyosho's famous "bullet-proof" transmission. Included are a clear body and wing. You select your own motor, batteries, speed control, and radio. See the future of 2WD racing at your hobby dealer today.

Distributed To
Leading Retailers
Nationwide
Exclusively Through

GREAT PLANES™
MODEL DISTRIBUTORS COMPANY
P.O. BOX 4021, CHAMPAIGN, IL 61821-4021

MAXIMUM CLOD

(Continued from page 158)

Smokin' Hobbies, 3 West Central Ave., Pearl River, NY 10965.

APM Custom Hobby, 11 Patton Pl., Dumont, NJ 07628.

Custom Chrome Parts Mfg., 36175 Plymouth Rd., Livonia, MI 48150.

R/C Research Engineering, 604 South Grand Ave., Fowlerville, MI 48836.

Stormer Racing, P.O. Box 126, Glasgow, MT 59230.

Aristo-Craft/Polk's, 346 Bergen Ave., Jersey City, NJ 07304.

Hobby Lobby International, P.O. Box 285, Brentwood, TN 37027. ■

DIRT DIGEST

(Continued from page 34)

hubs for the rear and Blackfoot hubs for the front.

If you want to modify the truck instead of the wheels, Fox, Striker, or even Rock-Buster axles might fit in place of the stock axles, but this is only an assumption based on the general interchangeability of Tamiya parts.

COMING NEXT MONTH

The next time we meet, I hope to be back to the RS 200, and maybe I'll discuss transmissions and gearing.

No matter which modifications you're working on (whether they seem easy or not), remember the immortal words of Boober Fraggie, "Where there's a will, there's a doubt"—and that's a healthy attitude if your modifications include cutting, filing, or deforming any part of your vehicle. Just be sure to measure precisely. It's easy to make something shorter, but if you've taken too much off the top...you know the rest!

Until next month: keep those cards and letters coming in. We just plan to sit around and wait for you to show up—so there!

*Here are the addresses of the companies mentioned in this article:

Tamiya/MRC, 200 Carter Dr., P.O. Box 267, Edison, NJ 08818.

JG Manufacturing, P.O. Box 6014, Whittier, CA 90609.

DuraTrax/Great Planes Model Distributors, 1608 Interstate Dr., P.O. Box 4021, Champaign, IL 61820.

Bru-Line Industries Inc., P.O. Box 3786, Center Line, MI 48015.

Advanced R/C Racing, 31210 La Baya Dr., Suite 217, Westlake Village, CA 91362.

Kyosho/Great Planes Model Distributors. ■



SLEDGEHAMMER

(Continued from page 65)

was finished and ready to boogie. We ran the first pack out on the lawn (my unreasonable wife won't let me trade the grass for a dirt racetrack). The Sledgehammer is very responsive and smooth. Though it had plenty of low-end torque to crawl over the grass, it wasn't a real screamer at top-end speed. Taking into account the fact that this truck has Oilite bushings instead of ball bearings, and that any new motor and drive train must be broken-in for better performance, this wasn't surprising.

The electronic speed control worked flawlessly, and wheel stands were easily accomplished by rolling the truck backwards with a little reverse throttle, then jamming the trigger forward. (This isn't recommended, though!) After a few wheelies (to test the strength of the speed controller, of course), the rear tires pulled off their rims and had to be glued back on.

OUCH!

At this point, the project took on a sour note, but it had absolutely *nothing* to do with the Sledgehammer. When gluing the

WINNER



Race into the '90s . . . and get your hands on a winner.

tires back on, I splashed a tiny drop of CA directly into my left eye! The initial sting was overshadowed by the horrifying thought that I might need to visit the local hospital. Copious amount of water at the kitchen sink did the trick, but, for two days, I felt as though I had a small piece of grit in my eye. I've been gluing tires onto rims for more than five years (often during the heat of competition), but this was a first for me. You can *never* be too careful.

CONSUMER CONCLUSION

This truck is definitely one tough customer. Its chassis seems to be impervious to the toughest punishment that rocky terrain can dish out. Its high ground clearance allows it to cross obstacles that would usually foil high-center, wimpy MTs. With seemingly little effort (and few bucks) this truck could easily be transformed into a killer production-class MT racer: just add ball bearings, (possibly) remove four of the shocks, and do a little weight trimming. I can't *wait* to try a set of bearings.

The Traxxas Sledgehammer might just be the best truck for those of you who want a monster but haven't yet decided whether you want to race or stomp on

cars; it offers the best (or at least a good compromise!) of both worlds.

**Here are the addresses of the companies mentioned in this article:*

Traxxas Corp., 12150 Shiloh Rd., #120, Dallas, TX 75228.

Pactra/Plasti Kote Co., 1000 Lake Rd., Medina, OH 44256. ■

SCOPING OUT

(Continued from page 67)

words of caution: *don't* lose the instruction book, because it contains all the switch settings you need to program the controller.

I programmed the acceleration to "R1 (instant)," and the trigger response curve to "Curve 1 (linear)." This turned out to be the best setup for lab testing, because the Turbo Zeta exactly followed the settings I dialed-in on the Pit Stop Radio. For all the tests, I measured the voltages at the 2-inch point on the battery and motor leads. I used the 2-inch point because it's reasonable to assume that serious pulling-truck builders replace stock connectors with high-capacity ones or eliminate them by hard-wiring everything directly. Two inches is about as short as you can cut the wires and still have enough to work with.

For the voltage-loss test, I passed 12 amps of current through it and found that the controller had a very low (.08V) voltage drop. This calculates as a resistance of .006 ohm, or .006V/A. (This is slightly higher than the manufacturer's specified resistance of .004 ohm, but that's for the FETs only, and my measurement includes the resistance of the printed-circuit board and 2 inches of wiring.) This is an amazingly low resistance; the typical voltage drop for a reversing speed controller at 12 amps is .4 to .6V!

THE LET-IT-COOK WAR

Next, I adjusted my resistor load bank for 15 amps of current and let the Zeta "cook." After 15 minutes, my resistor load bank was hot enough to fry eggs, but the Zeta still felt cold, so I decided to let it cook for another 15 minutes. After 30 minutes, the Turbo Zeta was barely warm enough to tell it had been turned on.

Determined to heat this critter up, I set the throttle at the 90-percent point, and this put the current level at 12 amps. This is the worst-case setup for heating the FETs, because they're switching on and off rapidly and must also contend with a large amount of current. After another 30

(Continued on page 167)

SCOPING OUT

(Continued from page 165)

minutes, the Zeta was barely above room temperature! I gave up and declared the Turbo Zeta the coolest-running speed controller I've ever tested.

The Turbo Zeta has built-in thermal shutdown, which means that even under a dead short, it should be bulletproof. I adjusted the throttle back to full bore and shorted the output with a jumper made of a 2-inch piece of monster wire and two alligator clips. A quick check of the current meter revealed that I was passing around 40 amps through the controller, and I sat back to see how long it would take for it to go into thermal shutdown. After about 5 minutes, my test setup was getting so hot that it was in danger of melting down, and I was forced to stop the test. The Zeta was just a little warm! In the "Let it Cook War," the score was Turbo Zeta-1; Test Bench-0.

THE KILLER

Finally, I wanted to see if the Turbo Zeta could handle 32 cells, as advertised. I use Litespeed-style connectors on all my battery packs; this permits me to separate

(Continued on page 170)

LC Sidewinder

NEW!

1/10- & 1/12-SCALE R/C RACING MOTORS

R.O.A.R. and N.O.R.R.C.A. Legal

13T-Triple
15T-Triple

STOCK MOTORS
17T-Single

14T-Single
19T-Single

Choice of Champions

Stock-28.00

MOD RACING MOTORS

Mod.-80.00

817-481-6887

Grapevine, TX



480 1.18 950

PROCELL

SANYO® SCRS

Unlimited	485 & up	\$12.50 ea.	Modifieds	455-469	\$ 7.50 ea.
ProCells	475-484	\$10.00 ea.	Novice	up to 454	\$ 6.00 ea.
Supers	470-474	\$ 8.50 ea.	(SCE's available upon request)		

MasterCard CALL 1-800-966-1616 VISA

GET WIRED

WITH STORMER RACING PRODUCTS



10L / 12L Aluminum Motor Mount Plate.
Motor mount plate contains a motor lock screw to keep your motor from moving forward and losing your gear mesh and race, also makes it easier to set gear mesh.
#4010.....\$29.95

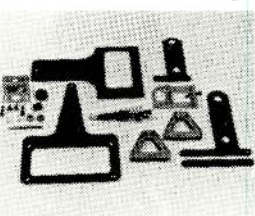
MAX-AMP 40 Power Supply:
Has triple simultaneous out-puts of: 1) 13.5v up to 20 AMPS for charging, 2) 13.5 v up to 20 AMPS for charging, 3) 4/6v up to 50 AMPS for Dynos.
Max-AMP 40 will charge 4 packs of batteries at a rate of 10 AMPS each while spiking to 50 AMPS on the 5v side operating a Dyno. Dimensions are 13" long 5" wide by 2-3/4" tall. The weight is a remarkable 4 1/2 lbs. (Pyramids 35 AMP unit weighs 25 lbs.) Max-AMP 40 is absolutely state of the art weighing 1/5th as much as the competition and offering three times the facilities with the advantage of far less bulk.
#179.00

Stormers "Hurricane" Fans.
Don't take chances with your expensive batteries and battery charging equipment keep a fan on them at all times to get rid of that unwanted and destructive heat buildup. Super quiet high volume full ball bearings with chrome grill 125VAC. #5001.....\$29.95

Light Weight Suspension Dampers.
Gives your car more traction and driveability than ride height adjusters or conventional shock absorbers, helps to eliminate chatter. Kits contain all damper components and necessary mounting hardware for each application.
#4050 10L.....\$18.95
#4051 12L.....\$18.95
#4052 TRC Pro 10.....\$18.95
#4053 Bolink E10.....\$36.95
#4054 Delta Villin.....TBA
#4055 Delta P12 Spider.....TBA
#Agitator 12.....\$18.95

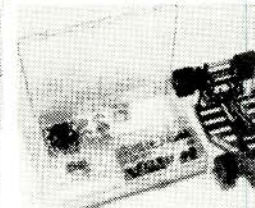


RFI Eliminator: (Motor capacitor system) The RFI Eliminator is a computer tuned and balanced system designed exclusively for R/C car and airplane electric motors to eliminate "Motor Noise" glitch.
#5002.....\$3.49

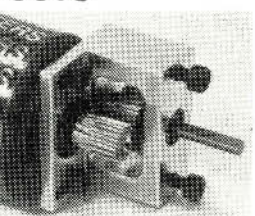


Traction Series T-Bars.
Thicker T-Bars Are for High Bite Tracks. Thinner T-Bars are for low bite tracks.
#4011 10L T-Bar.....\$6.95
#4012 10L T-Bar.....\$5.95
#4013 10L T-Bar.....\$4.95
#4014 12L T-Bar.....\$4.95
#4015 12L T-Bar.....\$3.95
#4016 PRO 10 T-Plate.....\$9.95
#4017 PRO 10 T-Plate.....\$8.95
#4018 E10 T-Plate.....\$10.95
#4019 E10 T-Plate.....\$10.00

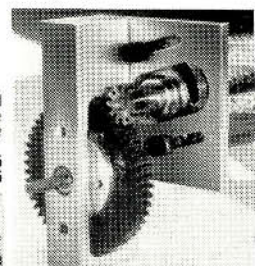
Aluminum T-Bar Bridges:
Fits Delta Villin and McAllister Outlaw. Eliminates the stress cracking and tweaking that's common with the original equipment bridges, for a more constant car.
#4008 Front Bridge.....\$19.95
#4009 Rear Bridge.....\$19.95



Adjustable compartment parts box.
Locking hinged lid parts box has adjustable compartments so you can customize it to fit your personal needs.



2 to 1 Gear Reduction Transmission.
Designed to fit most 1/10 on road cars, ideal for tight indoor and outdoor tracks, truck and tractor pulling and electric boats.
#1900.....\$47.95
#1901 (less gears).....\$39.95



4 to 1 Gear Reduction System
Designed specifically for the Clodbuster to increase low end torque for truck pulling or extended run time, also fits the blackfoot and others, part is a direct bolt on to Clodbuster and Blackfoot Gear Boxes.
#2000.....\$57.95 #2001 less gears.....\$52.95

even the smallest "E" Clip is easily removed from this box because the bottom of each slot is rounded. Size is 7x10x1.5 inches. #5000.....\$13.95

New from Twister: Pocket Commutator Lathe. At 4"x5"x3", it's the worlds smallest and it's accurate to .0002. Most Lathes can't do better than .0005. Uses a 4-Cell Battery pack for power. Lathe comes with a carbide cutter.....\$239.00
Optional Diamond Cutter.....\$80.00

CLodbuster OWNERS
FINALLY! All steel gear sets! Kit comes complete with all gears for front and rear.
#AP6.....\$99.95
All Aluminum replacement chassis. Not just a bottom or a front or rear, but a complete aluminum replacement Chassis with its own Chassis brace built right in. (probably one of the trickiest items we've ever seen for a Clod. Black, Silver, or Blue anodized.
#SC15.....\$99.95
#ES23: Aluminum tube front bumper.....\$24.95
#ES24: Twin tube rear bumper.....\$14.95
#2030: Trinity matched madness
16 T Clodbusters.....\$59.95

Gonzo Matched Sanyos
4 Cell SCE Cells.....\$26.75
6 Cell SCE Cell.....\$39.75
7 Cell SCE Cells.....\$46.25
4 Cell SCR Cells.....\$21.00
6 Cell SCR Cells.....\$31.50
7 Cell SCR Cells.....\$36.50

Race Packs
6 cell 1200 SCR, Wires, T/C.....\$27.95
6 Cell Pack, Wired, T/C.....\$19.95
7 Cell Hump Pack, Wired, T/C.....\$29.95

Chargers
Tekin, BC100S.....\$76.95
BC870.....\$57.95 Reflex.....\$104.95
Novak, NEC-2.....\$57.95 Nec-3.....\$104.95

1/10 on Road Tires, TRC, Delta, W/BBS Wheels
specify blues, greens or yellow.
Fronts.....\$8.95 Rears.....\$10.50

1/10 TRC T/M Radials
Specify silver, gold or red compound
Fronts (per tire).....\$12.75
Rears (per tire).....\$14.00
Ask about CKW and Minitech radials.

1/12 on Road Tires, TRC and Delta
specify blues, greens or yellows
Fronts.....\$6.95 Rears.....\$6.95

ORDERING INFORMATION: We accept Visa and M/C. C.O.D. Adds \$3.00. shipping and handling \$4.95. (Except power supplies), UPS: Air Service, \$4.95 plus 10% of subtotal.

DEALER INQUIRIES INVITED



STORMER



Racing

P.O. Box 126
23 High Speed Road

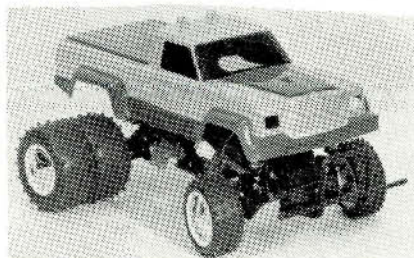
Glasgow, Montana
406-228-4569

1-406-228-4569.

Prices subject to change, warranties are handled by the manufacturer.

Bru-Line Super System

A full range of coordinated Monster Truck Wheels



Truck shown above with dual adapters and wheel covers. This modification can be used on many other cars and trucks.

Bru-Line "Super System"

wheels allow most 1/10 and 1/12 scale cars and trucks the use of smaller truck tires all the way to the ultimate Clod Bluster tires.



Kyosho Double Dare with "Super System" wheels and Clod Buster tires. Just one of the many cars and trucks that can use this conversion.

Send \$2.00 For Catalog & Tech Sheet

Bru-Line Industries • P.O. Box 3786 • Center Line, MI 48015

SCOPING OUT

(Continued from page 167)

their positive and negative leads and allows a series connection of several battery packs. To achieve the 32-cell count, I charged two 7-cell packs and three 6-cells. I then dug around in my box of junk electronics and came up with a 1-ohm,

100W resistor. Some quick calculations revealed that if this setup worked, my 100W resistor would be dissipating about 1,000 watts of energy. To solve this problem, I immersed the resistor in a 1/2 gallon of water.

I used the Pit Stop Radio to put the pedal to the metal. After 1 minute, smoke poured out and the current dropped to

zero. I guessed that I had finally managed to melt this baby down, but an inspection of my test setup revealed that, because of a bad solder joint, I had destroyed one of the Litespeed connectors. I replaced it, checked the solder joints, recharged the battery packs, and tried the test again.

On the second attempt, my battery

(Continued on page 174)

DR. J's West Coast Hobby Warehouse

M-F 8 a.m. - 6 p.m. (PST) Orders Shipped Same Day!
ORDERS ONLY - 800-622-2092 U.P.S. Next Day & 2-Day Available
PRICES & INFO - 805-945-4228 We Accept Visa - M/C - AMEX
FAX - 805-949-2391 Diners Club - Carte Blanche
45640 N. 23rd Street West, Lancaster, California 93536

Item No.	ASSOCIATED	Price
6000	RC-10 Basic	129.72
6010	RC-10 Less Bear.	155.25
6016	RC-10 Complete with Bearings	172.80
6030	RC-10 Graphite with Bearings	187.20
8001	RC-10L Basic FG with Bearings	97.92
8002	RC-10L Basic GR with Bearings	135.36
TAMIYA		
C5858	Blackfoot	104.36
C5860	Monster Beetle	149.72
C5863	Lunch Box	97.88
C5865	Clod Buster	255.56
C5868	Lotus Honda 99T	123.80
C5869	Williams Honda	123.80
C5870	Midnight Pumpkin	118.04
C5872	Avante	329.72
BOLINK		
BOL1315	Invader (Oval) Kit	100.80
BOL1360	Invader Basic	92.13
BOL1362	Invader w/o Electric	74.88
BOL1368	Eliminator Sport	77.97
BOL1370	Eliminator 10 FG	117.09
BOL1371	Eliminator 10L Elec.	89.97
BOL1372	Eliminator 10 GR	158.40
TRC		
1000	TRC Pro-10 GR	176.40
1001	TRC Pro-10 FG	159.95

Item No.	ADVANCED ENG.	Price
ADV9008	Ultima On-Road Conversion	56.16
ADV9009	JRX2 On-Road Conversion	56.16
ADV9000	RC-10 On-Road Conversion	53.04
PRO TECH		
PRT700	AC/DC Digital	73.58
PRT701	AC/DC Anal w/Chg.	46.03
PRT702	AC/DC Anal 6-7 Cell	46.03
PRT703	DC Analog 6-7 Cell	25.87
PRT706	Digital Peak AC/DC	80.30
PRT707	Analog Peak AC/DC	60.14
NOVAK		
T-1X	Elec. Speed Control	132.00
T-1	Elec. Speed Control	108.66
T-4	Elec. Speed Control	69.00
NER-2X	2 Channel Receiver	42.33

WE HAVE TRINITY & TWISTER MOTORS!



CALL DR. J's FOR ALL YOUR R.C. CAR NEEDS

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

Item No.	LOSI	Price
LOSC1000	JRX2	172.80
LOSC0050	JRXT Monster Truck	195.81
TRAXXAS		
1601	Bullet Kit	110.55
1610	Bullet RTR	183.31
1401	Fiero GTP Kit	60.30
1410	Fiero GTP RTR	134.00
1701	Radiator Kit	87.10
1708	Radiator RTR	194.30
1801	Sledgehammer Kit	113.90
1806	Sledgehammer RTR	214.40
HIROBO		
HCTOMCAT	Tomcat 2WD	59.95
HCZERDA	Zerda 4WD	77.28
HIRC1000	Jealousy 4WD	376.31
HIRC1001	Invader 4WD	155.60
HIRC1002	Alien SS	133.20
HIRC1003	Peugeot Turbo	178.64
HIRC1004	Toyota Celica	178.64
HC-10	Bearcat 2WD	48.77
KYOSHO		
KJ1617	Turbo Ultima	187.48
KJ1618	Ultima Pro	192.17
KJ1621	Optima Mid	174.99
KJ1622	Turbo Optima SE	237.48
KJ1604	Double Dare	163.19
KJ1605	Big Brute	95.99
KJ1606	High Rider Vette	95.99

CALL FOR WEEKLY PHONE SPECIALS!

WALLINGFORD INDOOR RACING ASSOCIATION

Wallingford, CT 06492

Invites you to the
**3RD Annual Southern
New England Shootout!**

1/10 Scale On-Road

Sunday March 25, 1990

**Lots of Trophies
and Manufacturers Awards**

— Last year we gave away over
\$3000 in prizes! —

- CONCOURS — IN ALL CLASSES —
- MUST RACE SAME BODY
- TOP QUALIFIER IN ALL CLASSES
- 1ST-6TH ALL CLASSES OF A MAINS & B MAINS
- DOOR PRIZES * T-SHIRTS *
- 1ST-3RD — C MAINS, D MAINS, E MAINS

3 Classes

Transmission Open • 15 year & Under Open • Pan Car Open

Location: 63 N. Cherry Street
Wallingford, CT 06492 3rd Floor

Schedule: Open Practice on Sat.
March 24th 9:00 A.M.
Sunday — Doors Open at 9:00 A.M.

2-4 Minute Qualifiers Begin at 1:00 p.m.

Entry Fees: Members: \$20.00 per car
Non-Members: \$22.00 per car
\$15.00 second car, second class

The Track With No Rules!

"Run What Ya Brung"

203-265-3939 WAYNE RYDZY

SCOPING OUT

(Continued from page 170)

packs were so hot after 2 minutes that they almost burned my hand, and bubbles were rising off the resistor. Even after all this, the Turbo Zeta was still barely warm to the touch!

I conclude that the Turbo Zeta is bulletproof! If you plan to use this speed controller in the high-powered mode it was designed for, I suggest that you:

- replace the battery connectors that come from the factory;
- eliminate as many connectors as you can by direct-wiring all connections;
- use the largest monster wire available, and consider running double wires where possible;

• build your own battery packs using heavy braid across the ends and double monster-wire output leads. The wire and solder joints inside a battery pack are just as important as those in the rest of the car.

The Turbo Zeta is big and heavy, so it isn't suitable for normal 1/10-scale on- or off-road cars; it's designed for monster pulling trucks, which usually require lead ballast to get their wheels to hook-up in a heavy pull. All my tests indicate that this is a world-class speed controller that can

handle awesome amounts of power, so if you're looking for a monster of a speed controller to go in your monster pulling machine, the Turbo Zeta is the ticket!

There are several other features on which I haven't commented (e.g., the effects of the programmable throttle and acceleration curves and the unusual way the Turbo Zeta shifts into reverse), but Wally David will discuss them in a future track report.

**Here's the address of the company featured in this article:*

Product Design Inc., 16922 NE 124th St., Redmond, WA 98052. ■

KYOSHO RAIDER

(Continued from page 75)

cured them with shrink tape, but I didn't have any, so I settled for electrical tape. I remembered a tip from the Ayatollah: "To hold them firmly to the rims, put some Jet glue around the inside of the tires." The entire process took about two hours.

The next night, I prepared the body for painting. Pactra* includes some excellent painting tips (prepared by Team Losi's Gary Kyes) with its spray paint. After Hemstreet's warning, I chose bright yel-

(Continued on page 185)

NEW

RM 348 48 Pitch Transmission
for RC 10 (available in April 1990)

For the toughest RC 10 transmission possible, use:

RM 310 Aluminum Bearing
Adaptor Kit 16.95

RM 302 Steel Idler Gears 14.95

RM 401 9.95

Heavy duty steering blocks - TAMIYA
fits Blackfoot, Mud Blaster, Monster Beetle
*stock steering arms will break-
OURS WON'T!*

RACEMASTER

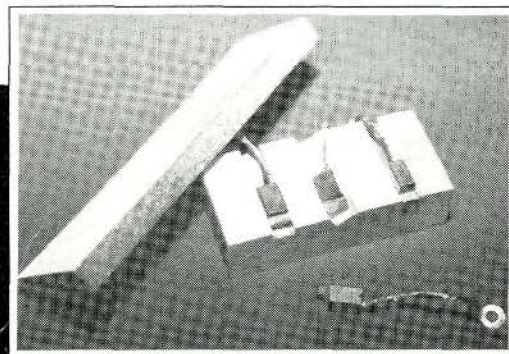
MFG.

6721-A Alder Dr. Houston, Texas 77081
office (713) 668-1253

NEW

RM 670 BRUSH FACTORY 19.95

Why buy expensive modified brushes when you can make them yourself from the stock brushes you already have?



Distributor and Dealer
Inquiries Welcome

KYOSHO RAIDER

(Continued from page 174)

low. ("You can paint it any color—as long as it's green, yellow, or orange: we want to see it in the photos!")

Prepping the car was easy. First, I washed the body with soap and hot water and dried it with a soft towel. With an X-Acto knife, I scored the body parts that had to be removed, then snapped them off. (This was much easier than trying to cut off the body parts with scissors!) I carefully masked the windows with masking tape and sprayed the inside of the body with smooth, even strokes. (I also sprayed my shoes, the garbage can, the garage floor and part of my father's car tire. Be careful, these spray cans can send a fine mist more than 6 feet! Use a backdrop of newspaper or cloth.) I was able to put a pretty good coat of paint on the R/C car body, but did get a little overspray on the rear wing. (I'll be more careful when I review another car...hint, hint!)

To get the paint really bright, I applied a coat of white paint over the yellow. I let the body dry overnight, then I cut out the decals and applied them firmly. (The Raider comes with excellent fluorescent decals, which, unfortunately, didn't leave room for any decals from my sponsor—Car Action.)

The radio was installed, the body was finished, and I was ready for the next step: testing and tweaking the radio. I slid the battery into its holder and strapped it in

using the supplied, self-tightening straps. Following the instructions, I adjusted the tie rods and radio trim until the car ran straight and performed perfect circles.

When I had the car running well in the garage, I opened it up in my driveway. Within minutes, I had a small problem: the rear tires were bald! (You're probably wondering what I was doing running an off-road car on my driveway; "Wally World" David wondered the same thing when I showed him my rear tires!) After a small frown from Hemstreet and a quick call to Kyosho, I had a new pair of tires to replace my "knobby-less" set of rears. Off-road tires wear down quickly on asphalt, so be careful to run your car *only* in the dirt. Grass will get caught in the motor and other moving parts, so avoid the front lawn, as well.

WHAT IT DID!

When the big review day arrived, I was ready with photographer Walter Sidas and pit crew Ricky and Matt DeNove (my 5- and 6-year-old cousins). I took along a Hobbico* battery charger (which plugged into my car's cigarette lighter) and a pair of MRC* batteries.

There was a race in progress at the local track, so I took my crew to the nearby BMX track. I flipped the "on" switches and pulled the throttle. The Raider ran beautifully up and down the banked slopes of the track. After a while, I tried a few trick jumps and burnouts. The LeMans stock 05 motor pulled the car

(Continued on page 186)

"...and here are the press-ons I use."

— Rich Muise



BODYSHOP WINDOWMASK

"Instead of cutting strips from rolls, I cut the whole window from the 6" x 12½"

Window-Mask. Enough for a whole car. BodyShop paint never leaks under it."



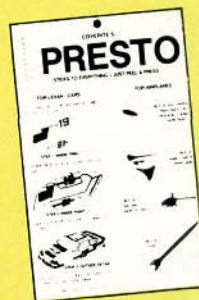
BODYSHOP PINSTRIPES

"These stripes are the best. They stay down even on 90° angles. Each sheet has 5 sizes, total 50 ft. 7 colors."



PRESTO TRIMSHEETS

"I cut out logos, gas caps, racing numbers, bumpers. Stick 'em inside or out. 6" x 12½" sheets. Enough for several cars. 9 colors including real metallflakes."



GRAPHICS STARS, ETC.

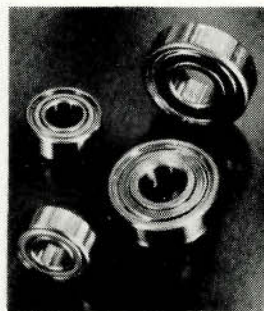
"Each star is diecut, so you just peel'n press. Stars in 4 sizes, 62 per sheet. Also ¼" & ½" numbers & letters on 1 sheet. 5 colors."



THE COVERITE
**BODY
SHOP**

420 Babylon Road, Horsham, PA 19044

BEARINGS BEARINGS FOR RADIO CONTROL MODELS



ONE OF THE LARGEST STOCKS OF MINATURE BEARINGS FOR RADIO CONTROL CARS, TRUCKS AND TRUCK CONVERSIONS. WE ARE BEARINGS SPECIALISTS.

WE STOCK BEARINGS FOR:
ABC-ASSOCIATED-AYK-KYOSHO
MARUI-NICHIMO-TAMIYA
AND OTHER MANUFACTURERS

CALL OR WRITE FOR OUR BEST PRICES,
OR SEND \$3.00 FOR OUR BEARING
CROSS-REFERENCE GUIDE



BOCA BEARING CO.

7040 W. PALMETTO PARK RD.
SUITE 2304, BOCA RATON, FL. 33433

PHONE #407-488-9606

FAX #407-488-9609

TELEX #467984

NORTH AMERICAN TOLL FREE

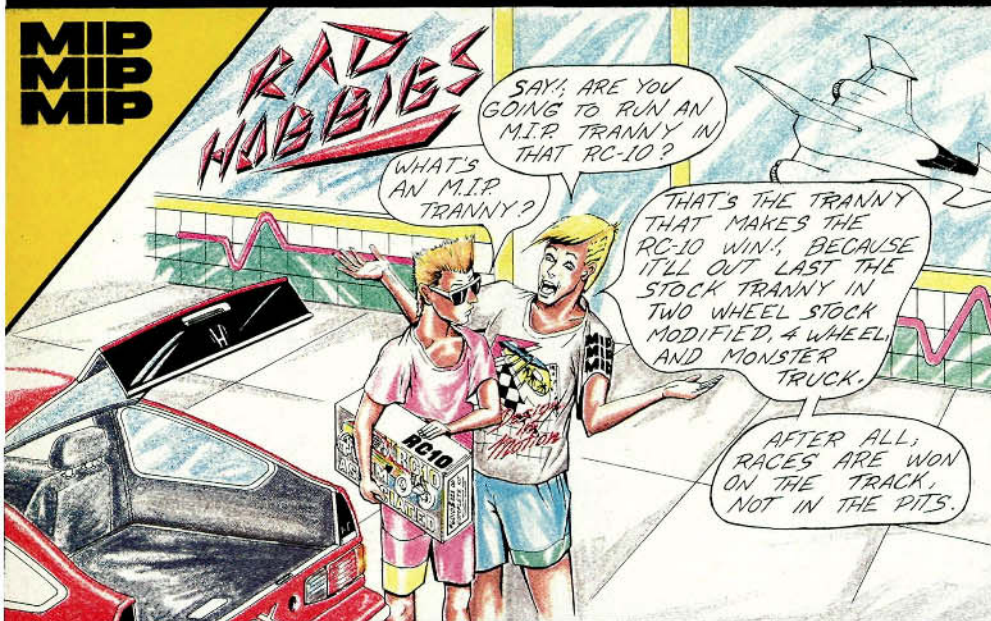
1-800-332-3256 (US)

1-800-553-3256 (CANADA)

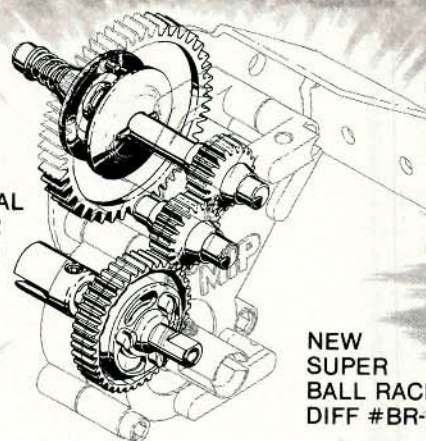
ONE GOOD REASON TO CHOOSE M.I.P.

A LOOK INSIDE THE
M.I.P. GEAR BOX

MIP
MIP
MIP



NEW
EXTERNAL
SLIPPER
#SL-100



NEW
SUPER
BALL RAC
DIFF #BR-

OUR TRANNY BOLTS
RIGHT IN YOUR STOCK RC-10

For fully illustrated catalog, send \$2.00
MOORE'S IDEAL PRODUCTS: 838 E. Edn
Covina, CA 91723 U.S.A. Ph: (818) 339-9
CALL YOUR DISTRIBUTOR TODAY

KYOSHO RAIDER

(Continued from page 185)

strongly up the banks, and the knobby
tires provided great traction.

When the races were over, I climbed
the empty stand and had my first run on

an official R/C dirt track, which is the
perfect place to practice turning and
jumping skills. The MRC batteries lasted
10 to 15 minutes before I began to lose
power.

The people at the track were extremely
helpful, and, together, we trimmed the

radio and steering even further. After a
brief chat with a fellow enthusiast (who
admired my beginner's paint job!), I
learned that the Raider could be run in an
off-road, production-class race: no fancy
equipment is necessary to enter an ARR

(Continued on page 188)

DYMOND ELECTRIC POWER RACING MOTORS

**GO
FOR
THE
GOLD!**



Dymond Gold Label electric
motors . . . premium quality,
top of the line racing motors.
DYMOND GOLD LABEL MOTORS
are the leader of the pack in
1/10 on road, oval, and
off-road racing!

Every Dymond Gold Label
modified motor is hand-
wound, and each armature is
state-of-the-art, precision-
balanced for peak
performance. Broken
in and dynoed at the factory,
the Dymond Gold Label
Modified motors are ready to
take home the gold.

UMD

301 HOLBROOK DRIVE
WHEELING, ILLINOIS 60090
PHONE: 708-459-6700 FAX: 708-459-4834

Paasche Airbrushes

• FINISH WITH STYLE •
• QUALITY & CRAFTSMANSHIP •



When the finish must be the very best, turn to Paasche Airbrushes for easy handling, maintenance and smooth operation. A wide variety of models, styles and accessories to choose from, packaged individually or in kits or sets, one just right to suit your needs!

Free Catalog: Paasche Airbrush Co., 7440 W. Lawrence (Dept:RC) Harwood Hts, IL, 60656-3497 708/867-9191

KYOSHO RAIDER

(Continued from page 186)

car like this in a race! For your first time out, I highly recommend that you find a nearby track and get together with other R/Cers. They can offer tips and insights to get you up and running with the fewest hassles.

Back home, I did some quick maintenance jobs that Kyosho recommends. I wiped off the body, removed the batteries from the car and the radio and checked for loose parts. I also had to wipe off the speed controller (which was quite dusty) and the rest of the motor and interior assembly. I put a little grease on the axles, and I was all set to store the car till next time.

The day was a success, and I'm looking forward to more production racing this spring. Thanks again for the Raider ARR, Wally, and be sure to tighten your wheel nuts: there may be some competition headed in your direction! Stay tuned for more true testimonies from beginner Ed Schenk—a "hammer" in the rough?

*Here are the addresses of the companies mentioned in this article:

(Continued on page 204)

REEDY

Modifieds

**Reedy Modifieds Are
Bursting Through
With New Technology**

Reedy Modifieds uses advanced R & D computer systems to develop and improve motor performance. Race developed and tested, Reedy motors are 4 TIMES IFMAR WORLD CHAMPIONS, leaping ahead of all competition.

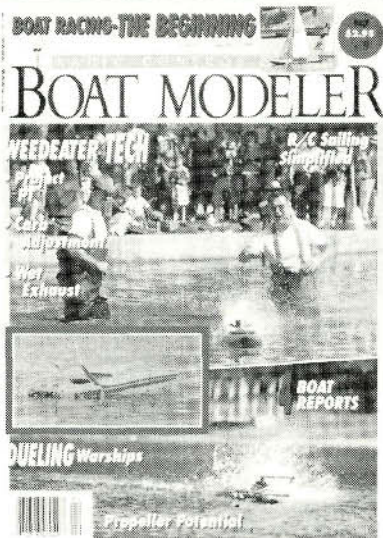
**Reedy Modifieds.
The Outburst of
New Technology.**



3585 Cadillac Ave.

(Graph shown represents actual coreadout of Reedy Modifieds motor.)





Learn more about the exciting world of offshore racers, hydros, tunnel hulls, deep vees, ships, sailboats and sport boats in all scales of gas and electric!

For a sample copy of the leading R/C boat magazine, send \$1 (\$2.95 value), postage included, to:

Radio Control Boat Modeler Special Offer
Air Age Mail-Order Services
251 Danbury Road
Wilton, CT 06897

KYOSHO RAIDER

(Continued from page 188)

Kyosho/Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

"Basics of R/C Cars" and "Advanced Radio Control Cars" are available from Air Age Publishing, Inc., 251 Danbury Rd., Wilton, CT 06897. Price: \$9.99 each, plus postage and handling.

X-Acto; division of Hunt Manufacturing, 1818 Market St., Philadelphia, PA 19103.

Pactra/PlastiKote Co., 1000 Lake Rd., Medina, OH 44256.

Hobbico/Great Planes Model Distributors, MRC, P.O. Box 267, Edison, NJ 08818. ■

MONSTER RACING

(Continued from page 79)

a Ford pickup body and scale-like tires with a chevron tread pattern. Because of its Frog heritage, there were plenty of after-market, hop-up parts to make the Blackfoot stronger and more competitive.

In 1987, the Big Bear Class gave way to the Blackfoot (or the loosely termed "Production Truck") Class. Many other manufacturers were jumping on the MT bandwagon, and a plethora of different types of truck began to appear everywhere. Although Tamiya had a firm grip on the market with such creative efforts as Vanessa's Lunch Box, Midnight Pumpkin and Clod Buster, these rigs were

soon sharing shelf space at hobby stores with such ambitious offerings as Kyosho's Double Dare and Big Brute, Varicom's Big Grizzly, Royal's Crusher and, most recently, Traxxas' Sledgehammer.

During the developmental years of R/C MTs, manufacturers didn't seem to have a clear picture of what consumers wanted in the "ultimate" MT, partly because consumers themselves had no single purpose in mind for these rigs. Some people bought MTs for their ability to traverse various types of terrain, while others bought them for their sled-pulling power, or for racing. Most, however, bought them purely for fun.

In the highly competitive world of R/C racing, the need for speed constantly pushes existing technology to the limits, and today's "hot setups" quickly become yesterday's "also-rans." While the Blackfoot was enjoying its heyday as the hot, racing MT, forces were already at work that would eventually lead to a decline in the number of Blackfoot racers.

CONVERSIONS ENTER THE PICTURE

In Whittier, CA, JG Manufacturing (a

(Continued on page 208)



Car & Buggy Engines



MINIATURE MUSCLE

Three new additions to the Webra engine line up for 1989 include the Sport .10, Speed .20 ABC and Speed .28 ABC Car and Buggy engines for 1/10th and 1/8th scale cars. The Sport .10 is a great choice for those who want to get their feet wet in gas powered, on or off road. The Speed .20 and .28 are breaking new ground and turning heads with their high torque, incredible power, maintenance free operation and unsurpassed performance.

#WE1006CAR Sport .10 Car/Buggy

#WE1018CAR Speed .20 ABC Car/Buggy

#WE1029RCB Speed .28 ABC Buggy

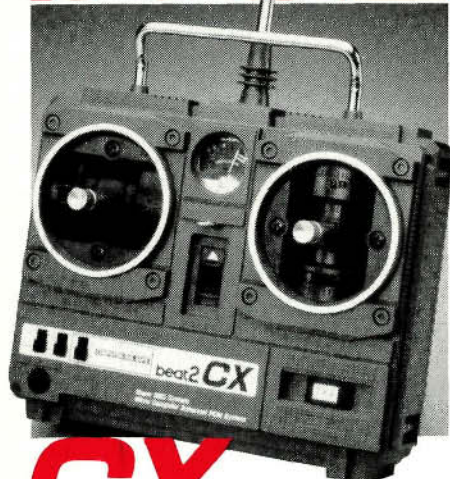
Webra Engine	Output HP	RPM-Range RPM/mon.	Displacement ccm	Bore mm	Stroke mm	Weight oz
.10 Sport	.30	2500-17000	1.6	13.0	12.0	3.46
.10 Speedy	.50	2500-24000	2.0	14.2	12.5	4.76
.20 Speed ABC	.95	2500-18000	3.42	16.5	16.0	7.58

Available now through your local hobby dealer.

Hobby Dynamics

Hobby Dynamics Distributors • P.O. Box 3726 • Champaign, IL 61826-3726 • Phone 1-800-458-0241 • FAX 1-217-355-0058

beat2



CX

JR REMOTE CONTROL

2 Channel Racing Excitement!

Command the roadways or the waves with the *Beat 2 CX*. Pulse Code Modulation (PCM) makes it possible to select a fail safe system that will help to protect your model in the event of signal loss or interference. Incorporate this with servo reversing for both channels, and you have a versatile system at affordable pricing.

No frills, just pure, solid performance. Quick frequency changes are as easy as grabbing optional crystals (27 MHz), making it easy to be ready for any challenger. Each *Beat 2 CX* is equipped with an ABC&W™ receiver, two 507 servos, switch harness, and battery case. Take command with the *Beat 2 CX* 2 channel radio system - JR quality at its best!

*Available now through
your local hobby dealer
at yesterday's prices.*

**hobby
Dynamics**

P.O. Box 3726
Champaign, IL 61826-3726
Phone 1-800-458-0241
FAX 1-217-355-0058

MONSTER RACING

(Continued from page 204)

small manufacturer of after-market performance parts that produced hop-up parts for the Blackfoot) began to develop conversion parts that would transform an ordinary RC10 into a race-ready MT. The company's owner, John Gudvangen, realized that there was only so much you could do to a Blackfoot to improve its performance.

Gudvangen began to make front axles and rear-wheel adapters that would allow you to mount Blackfoot-type wheels on an RC10. Companies like Pro-Line and CRP were already making lighter wheels, and a variety of racing tires was also being manufactured for the Blackfoot. In early 1987, Gudvangen and his crew showed up at the Hot Trax raceway in Huntington Beach to compete against Blackfoots with their innovative trucks.

Just as modified Blackfoots ran circles around Big Bears, so, too, did the new RC10 truck outgun the competition. In fact, the converted RC10s worked so well that the track's owners decided to race them separately from the Blackfoots in their own class, as long as at least four trucks showed up to compete.

While JG was developing its trucks, a new race-sanctioning body was being formed. NORRCA began organizing races in 1987; the following year, it became the first sanctioning body to establish a set of rules for MT racing. NORRCA dubbed this new truck class "Open Monster Truck" and established a Stock Truck Class in which Blackfoots and other "production" trucks could compete.

NORRCA'S FIRST TRUCK CHAMPIONSHIPS

In June '88, the first Truck Championships were held at the Radio Control Race Cars of Riverside racetrack in Riverside, CA. The track's owner, Warren Reed, worked closely with NORRCA President, JR Sitman, to hammer out rules for this new type of racing and to make this inaugural event an overwhelming success. Close to 200 entrants attended the event, and a few drivers established themselves as the first truck champs.

Gary Guest and Brandy Dreifus (both sponsored by JG) emerged as the two quickest drivers in Open MT. Brandy went on to dominate this class in the NORRCA Off-Road series, earning the

(Continued on page 210)

CONTRIBUTORS WANTED

We think many of our readers have ideas that are worth sharing. How many times have you read an article and said, "I could do that!" or "That's not the only way to do that; my way is easier!" Could be!

Here's your chance. We're expanding *Radio Control Car Action* and are looking for additional contributors to help us accomplish this objective. Of key importance are good photographs; the writing we can help you with. Interested? It's much easier than you might think!

Let's hear from you. Send in your article ideas and a few sample photographs. We're looking forward to seeing them.

Rich Hemstreet
R/C Car Action
Air Age Publishing
251 Danbury Road
Wilton, CT 06897

EDITORIAL OPPORTUNITY

Air Age Publishing, Inc., publisher of *R/C Car Action* and other hobby-related publications, is looking for a creative, self-motivated individual who is interested in a magazine career. You will work on *R/C Car Action* and related special publications and books.

You must have an in-depth knowledge of the R/C hobby, and experience in writing, editing and photography is preferred. This is a great career opportunity with a fast-growing company. Send your resume to:

Personnel Manager
Air Age Publishing
251 Danbury Road
Wilton, CT 06897



**FOR THE R/C
AIRPLANE
ENTHUSIAST
ON NEWSTANDS
AND IN HOBBY
SHOPS EVERYWHERE**

MONSTER RACING

(Continued from page 208)

permanent no. 1 on her truck by finishing first overall in '88 and '89. Also at the first Truck Champs, Andy Aaron piloted a Kyosho Big Brute into 1st place in the Stock Truck Class against a field of modified Blackfoots.

In 1989, NORRCA established a 4WD MT Class, and Eustace Moore (of MIP fame) built a 4WD, RC10 MT with which he won the '89 class title. Also in '89, Team Losi decided to join in the fun and started racing converted JR-X2s. Jack Johnson takes credit for being the first to transform the newly released Losi car into an MT as early as September '88.

At the '89 Truck Championships, "Jumpin' Jack" Johnson TQ'd and won the Open MT Class with what turned out to be the harbinger of the recently released JR-XT: a fully race-ready, production, monster racing truck.

By this time, a handful of after-market manufacturers were producing performance parts for MT conversions. Two companies, JG Manufacturing and Pro-Line, introduced complete kits that in-

cluded not only the hardware to mount monster-truck tires to RC10s, but also wheels, tires, body mounts, bodies, etc. Eventually, kits were being produced to convert other cars (e.g., the Ultima, the Optima and the YZ-10) into MTs.

Responding to racers' demands, NORRCA also created the Super Stock Truck Class for drivers who wanted the handling qualities of the converted RC10s, but weren't quite ready to handle all the horsepower of 7 cells and open motors.

Following NORRCA's example, ROAR decided to include MT racing in its 1990 racing schedule. Warren Reed came into the picture once again; he's promoting and organizing ROAR's first Truck Championships, which will be held in Las Vegas, NV, in March.

The world of monster trucks could probably be divided into three categories: all-out racing, all-out pulling, and all-out fun. Although the designs of the first monsters lacked direction, manufacturers now identify specific needs and produce trucks for whatever you have in mind.

Next month, I'll take an in-depth look at some of the available trucks and find out what makes each unique. ■

NOT JUST ANOTHER PRETTY FACE



"All of my products have extensive research and development behind them to be truly new and innovative."

We all know Dan's presence at an RC race is great fun and his sportsmanship awards emphasize the positive aspects of RC racing.



**BANANA LUBE
#10019**

real. The spray doesn't melt your plastic parts, and the lube does work great.

But after the fun and excitement of race day, you realize the benefits of Dan's RC Stuff.

For instance, the motor spray and banana lube, are, non toxic, for



**MOTOR SPRAY
#10010**



DAN'S RC STUFF
9525 COZYCROFT AVE. #C
CHATSWORTH, CA 91311

Dan's new battery bars are designed for easy use and high conductivity. They're even gold plated for non corrosion.

Great ideas like these, plus motorhomes, body foams, Dan's stands, and more, make the choice of Dan's RC Stuff, the right choice.



**"GOLD BARS"
#10027**

SEND \$2.00 FOR CATALOG AND DECALS.
"NOW WE'RE HAVING FUN"

TRACK DIRECTORY

(Continued from page 216)

LET'S RACE AMERICA RENTAL SPEEDWAY

1030 W. State Rd., 434, Longwood, 32750
Bruce Fallon (305) 834-7888

WEST COAST R/C CLUB
3906 Bay Villa Ave., Tampa, 33611

D AND D RACEWAY, INC.
2322 Hibiscus Dr., Edgewater, 32032

LAKE WHIPPOORWILL INTERNATIONAL SPEEDWAY
12345 Narcoossee Rd., Orlando, 32812
Trackside (407) 277-9586
Campground (407) 277-5075

SUNSHINE R/C DRAG STRIP
West Palm Beach
Rick or Phil (407) 965-7975

THE AWESOME CHARGER SPRINT CAR



Scratch-build your own 1/10-scale electric asphalt/carpet outlaw sprint car. This super-lightweight sprung chassis is constructed of flexible music wire and features a changeable wheelbase that allows the use of many different body styles. The Charger Sprint Car is fast and maneuverable. Blueprint is only \$9.99 plus \$1.50 postage and handling.

Radio Control Car Action Plans • 251 Danbury Road • Wilton, CT 06897

GEORGIA

DALTON RACEWAY
2300 Chattanooga Rd., Dalton, 30720
Danny Sane (404) 226-6699

SCORE
Lake Mayer Park, Savannah
Contact Phil Hurd, 1 Melinda Cir.,
Savannah, 31406
(912) 355-6033

BOLINK RACEWAY PARK
420 Hosea Rd., Lawrenceville, 30245
Bob Rule (404) 963-0252

PDQ RACEWAY
429 Bankhead Hwy., Mableton, 33059
Richard Burdett (404) 941-2626

SILVER WINGS SPEEDWAY
5611 Riverdale Rd., College Park 30349
(404) 991-2225

GEORGIA HOBBY CENTER
112 Kenwood Rd., Fayetteville 30214
(404) 460-1753

(Continued on page 222)

TEAM TRAXXAS

OFF-ROAD SPONSORSHIPS AVAILABLE

OPENINGS THROUGHOUT THE COUNTRY 2 WHEEL DRIVE, NOVICE-EXPERT, STOCK AND MODIFIED

IF YOU WANT TO BE CONSIDERED FOR A POSITION ON TEAM TRAXXAS, FILL OUT AND MAIL THIS FORM.

NAME _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

() _____

PHONE _____

AGE _____

① RATE YOUR SKILL LEVEL

☐ EXPERT

☐ INTERMEDIATE

☐ NOVICE

② ARE YOU CURRENTLY SPONSORED BY ANOTHER MANUFACTURER

☐ YES

☐ NO

PLEASE LIST SPONSORS

1. _____

2. _____

3. _____

③ HAVE YOU EVER WON A SANCTIONED NATIONAL OR REGIONAL EVENT?

☐ YES

☐ NO

MAIL TO:

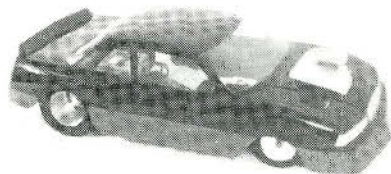
**RACE TEAM COORDINATOR
TRAXXAS CORP.
12150 SHILOH RD.
DALLAS, TX 75228**

★★★★★★★★★★★★★★★★
★ M/C

A.J.'s R/C

★★★★★★★★★★★★★★★★
★ VISA

Performance Drag Kits Born To Run **FFFFFFFFFAST!!**



CONTENDER 1/10 Funny Car 199.95
60+ m.p.h.
Sub 2.4 second E.T.'s
10 Cell

- Solid Direct Drive - Delrin Gears
- Guaranteed Graphite Chassis
- Slotted Ultralite Mag Wheels
- Grade 5 Ball Bearings
- Aluminum Alloy Motor Pod
- Cobalt Motor Compatible
- Adjustable Axle Height
- Buick or Olds Body
- Optional Bodies Available
- Race Proven - Trophy Winning

"THE FORCE" Series Dragsters
Alcohol & Top Fuel - 20 thru 30 inch wheelbase
Guaranteed Graphite Chassis - Several Bodies
Single, Double and Triple Motor Models
Kits Starting at \$199.95

..... Authorized Black Magic Motor Rebuilder

Pro Stocks

That Run **FFFFFFFFFAST!!**



Guaranteed Graphite Chassis
Slotted Ultralite Mag Wheels
Olds & Buick Bodies with Hood Scoops
Gear Drive - No Power Robbing Clutches or Chains
A.J.'s To Win - Brand "L" To Spin

Pro Stock \$229.95
Plus Shipping & Handling

2102 Gunderland Ave., Schenectady, NY 12306 (518) 377-7442

Dealer Inquiries Welcome

TRUCK PULLING

NEW: Clodbuster Steel Differential Gears, Super Strong
2 Complete Sets only 99.95
PDI Turbo Zeta w/rear 32 cells 259.95
PDI Hydro Zeta 169.95

Black Magic Motors:

Stock Truck Pulling 27.95
Modified Pulling Hi Torque 69.95
Clodbuster Matched Pulling Pair 139.95
Clodbuster Hi Speed 139.95
16 cell Cobalt (German Case) Awesome 229.95
Custom Adjustable Aluminum Pulling Hitches 49.95
Super Soft Foam Pulling Tires (pair) 39.95
New MRC Bruiser Parts Available

DRAG RACING

PDI Drag Zeta Prog. Speed Controller 159.95
Black Magic Voo-Doo 102,000 rpm 69.95
Top Fuel Dragster and Funny Car 82,000 rpm 69.95
Black Magic 13 Triple Pro-Stock 69.95
8 Cell 900 mah SCR Pro-Stock Pack 42.95
10 Cell 600 or 900 mah SCR Killer 58.95
Wheeler Bar Kits 12.00
A.J.'s UltraLite Aluminum Wheels For All Fine Design Kits

TRACK DIRECTORY

(Continued from page 218)

HAWAII

HAWAII R/C ELECTRIC CAR CLUB
1423-10th Ave., Honolulu, 96816
(808) 737-9582

COBRA

P.O. Box 27908, Honolulu, 96827
(808) 538-7255

IDAHO

VAROOM-VENTURE RACEWAY PARK
P.O. Box 2234, Lewiston, 83501
(208) 743-4141

ILLINOIS

METRO FAST RACEWAY
950 W. Irving Park Rd., Hanover Park, 60103
(312) 213-3977

WEP ELECTRONICS & HOBBIES

Rt #2, Box 59, Lawrenceville, 62439
Bill Poe (618) 884-9048

**TUNE IN NEXT MONTH FOR
MORE TRACK DIRECTORY**

**We Make
It Better!**

TIRES

A CRP/Dynamite Front Tires, Spiked 4216
B CRP/Dynamite Front Tires, Combo 4220
C CRP/Dynamite Rear Tires, Super Spikes 4224

ANTENNA

D Chassis Mount Antenna 3021

STEERING

E Heavy-Duty Steering 1604
F Front Steering Arms, Tamiya 1621

SUSPENSION

G Rear Axle Springs 1547
H Front Shock Kit 1556

MOTOR ACCESSORIES

I Motor End Bell cover, Foam 2158

BUMPER

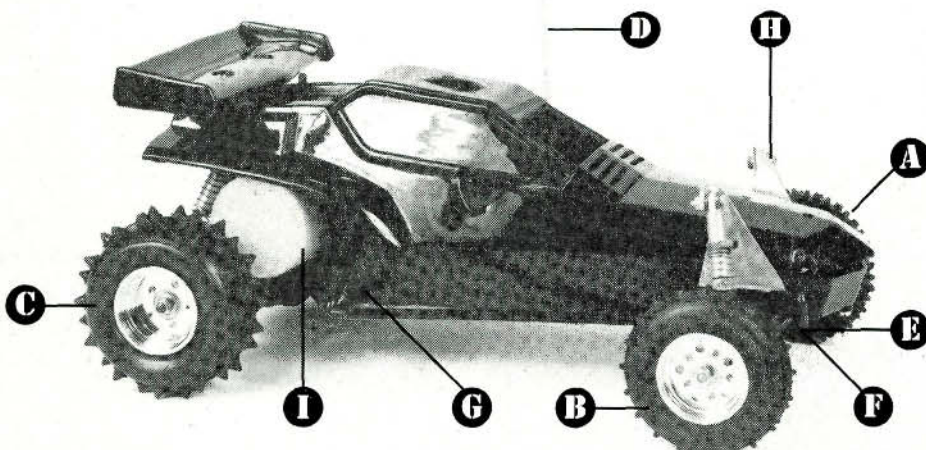
Front Bumper 3040



Available
Through
Your Local
Hobby
Stores!

PROJECT: HORNET

**MONSTER TRUCK
CONVERSION KITS
ALSO AVAILABLE**



Custom Racing Products, Inc.

Post Office Box 2530
Atascadero, California 93423-2530
(805) 466-6945



Killer Cab

Transform your King Cab with a set of Sees one-piece, machined wheels. Incredibly lightweight due to advanced computerized machining process, these aluminum wheels come in both hole and spoke styles.

Available only at your local hobby store or racetrack. Ask for 'em today.

Exclusively distributed through Horizon Hobby Distributors, Inc.



SEE 2200 holes/front
2210 holes/rear
SEE 2205 spokes/front
2215 spokes/rear



ADVERTISER INDEX

Ace Hardware	120
Action Videos	67
A.J.'s R/C	222
America's Hobby Center	125
Andes Hobbies	168-169
Andy's R/C Products	157
A.P.M. Custom Hobby, Inc.	21
Associated Electrics	16, 17, 171, 188, C3
Astro-Flight	8-9
Autographics of California	103
Auto Wing	206
B&B Software	32
B&R Motorworks	71
B&T Racing Team	151
Boca Bearing Co.	185
Bolink R/C Cars, Inc.	116
Bru-Line Industries	170
Bullet Racing Products	43
Central Model Marketing	148
Cheetah Racing	67
Cobra	126
Competition Battery Sales	105
Competition Electronics Inc.	189
Coverite	184, 185
Cox Hobbies	4
Custom Chrome Parts	154-155
Custom Racing Products	151, 222
Dan's RC Stuff	210
Degree Manufacturing	158
Doctor J's R/C Warehouse	170
Edge Products	32
ERI	110
ESP Manufacturing	46, 105
Futaba Corp.	74, 99
Garbart	119
Great Northern Hobbies	106-109
Hobbico	62, 211
Hobby Dynamics Distributors	78, 204, 208
Hobby Shack	83-85

Hobby Stop	21
Horizon Hobby Distributors	161
Imex Model Co., Inc.	53, 209
Island Hobbies	121
J&M Hobbies	150
K/N R.C. Speedway	110
Kyosho	C2, 18, 163, 164-165, 187
LC Sidewinder	167
Litespeed	47
Mark Allen R/C	67
McAllister Racing	115, 117, 119, 121
Minitech Racing Products	100
Miracle Speedway	31
MK Model Products	159
Model Craft Manufacturing	89
Model Racing Products	94
Model Rectifier Corporation	23, C4
Moore's Ideal Products	186
Novak Electronics	11
Omni Models	128-129
Paasche Airbrush	188
PanaVise Products	103
Paragon Racing Products	65
Parma International Inc.	7, 55, 149
Peak Performance	175
Periphex	117
Pro-Cell	167
Product Design, Inc.	207
PRO-LINE U.S.A.	10
Quarter Flash	105
R.C.B.M. Subscription	213
R.C.C.A. Back Issues	220-221
R.C.C.A. Book Ad	58-59
R.C.C.A. Charger/Duster	218
R.C.C.A. Decals	216
R.C.C.A. Stock Car	223
R.C.C.A. Subscription	122-123
R.C.C.A. Upcoming Products	50

R/C Airplane Buyer's Guide	212
R/C Car Corp.	44
R.C. Direct	172-173
R.C. Hobbies	215
R/C International	127
R/C Race Prep	29
Racemaster Mfg.	174
Racer's Choice R/C	118
RAM	126
Retailer Ad	158
Robinson Racing Products	26, 91
Royal Products	35
RPM	123
Sanyo	214
Sassy Chassis	124
Sees Precision Machine Works	226
Sheldon's Hobbies	176-183
Southside Hobbys	147
S.S. Industries	111
Stage III	31
Stormer Racing	167
TMS Products	217
Team Losi	12-13, 224-225
Tekin Electronics, Inc.	85
The Finest R/C	216
Thorp Manufacturing, Inc.	45, 98
Tower Hobbies	190-203
Traxxas Corporation	112, 218
Trinity Products	3, 166
Twister Motors	130
United Model Distributors	186
Venture Racing	46
Victor Engineering	219
VRP Inc.	124
Walt's Hobby	32
Watson Racing	103
World Engines Inc.	20
WSS	174